





ROYAL COMMISSION OF INQUIRY INTO CERTAIN DEATHS AT THE HOSPITAL FOR SICK CHILDREN AND RELATED MATTERS.

Hearing held 8th floor 180 Dundas Street West Toronto, Ontario

The Honourable Mr. Justice S.G.M. Grange

P.S.A. Lamek, Q.C.

E.A. Cronk

Thomas Millar

Commissioner

Counsel

Associate Counsel

Administrator

Transcript of evidence for

October 5, 1983

VOLUME 45

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1 2	DEATHS AT THE HOSPITAL FOR SICK CHILDREN							
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4		d on the 8th Floor,						
5	180 Dundas Street West, Toronto, Ontario, on Wednesday, the 5th day of October, 1983.							
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8	THE HONOURABLE MR. JUST	ICE S.G.M. GRANGE - Commissioner						
9	THOMAS MILLAR	- Administrato:						
10	MURRAY R. ELLIOT	- Registrar						
11								
12								
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(Cont'd)

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1 INDEX OF WITNESSES 2 NAME Page No. 3 COSTIGAN, (Dr.) Daniel Colm; Sworn 1 4 Direct Examination by Mr. Lamek 5 Examination by Mr. Scott 120 Cross-Examination by Ms. Forster 125 6 Cross-Examination by Mr. Hunt 155 Cross-Examination by Mr. Young 164 7 Cross-Examination by Ms. Symes 170 Cross-Examination by Mr. Knazan 8 204 Cross-Examination by Mr. Olah 218 9 10 11 12 13 INDEX OF EXHIBITS 14 No. Description Page No. 15 16 205 Inventory of Digoxin at The 91 Hospital for Sick Children. 17 18 19 20 21 22 23 24 25



DM/ak

(Commencing at Pg. 1 re computer reasons.)

---Upon commencing at 10:00 a.m.

THE COMMISSIONER: Yes, Mr. Lamek?

MR. LAMEK: Mr. Commissioner, the

witness this morning is Dr. D.C. Costigan.

Dr. Costigan, can we ask you to come

into the witness box, please.

DR. DANIEL COLM COSTIGAN, Sworn DIRECT EXAMINATION BY MR. LAMEK:

Q. Dr. Costigan, you are a physician licensed to practise, among other places, in Ontario?

A. Yes.

 Ω . And where do you carry on your practice?

A. I am in Montreal, at the Montreal Hospital for Sick Children.

Q. And in what capacity, please?

A. I am a Research Fellow.

 Ω . Doctor, you were born in Dublin and educated in Ireland?

A. Yes.

Q. And you attended the Medical School of the University College in Dublin?

A. Yes.

O. And I won't embarrass you by

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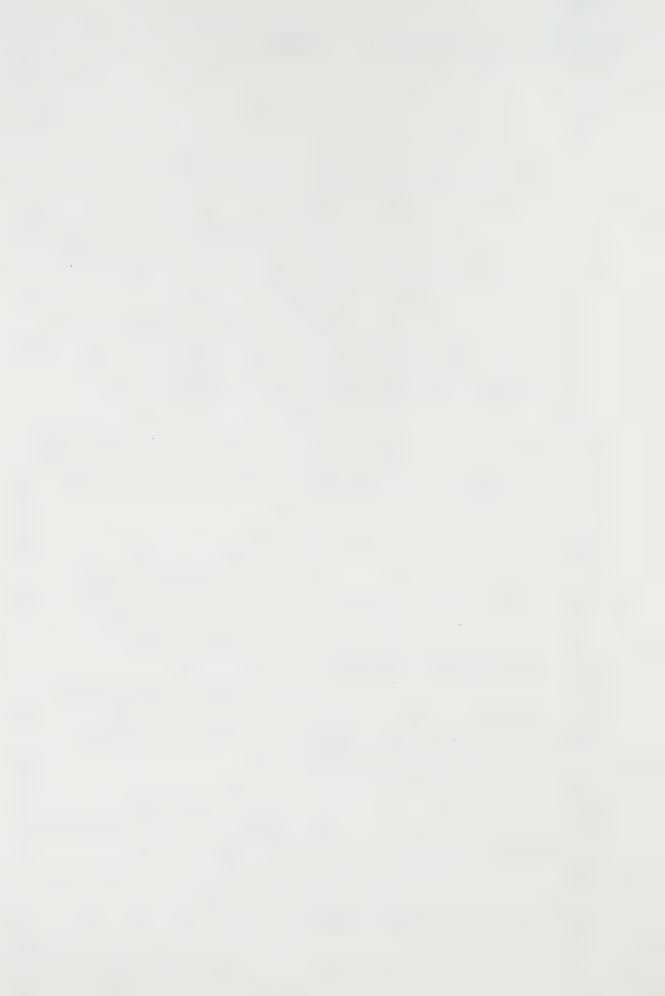


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2	listing them, but you won prizes and medals there?
3	A. Yes.
4	Ω . And I understand it was there
5	that your interest in pediatric medicine developed?
6	A. Yes.
7	Ω . And indeed, one of the awards
8	that came your way at that time was the Colman
	Saunders Gold Medal in Pediatrics, was it not?
9	A. Yes.
10	Q. You were graduated in 1975 wit
11	the Degrees of Bachelor of Medicine and Bachelor of
12	Surgery?
13	A. Yes.
14	Ω. And then did general medical
15	and surgical internships at two Dublin hospitals?
	A. At one Dublin hospital,
16	St. Vincent's Hospital.
17	Ω . You then spent the years from
18	1976, July 1976 to June of 1979 as what in these
19	parts we call a resident?
20	A. Yes.
21	Ω. In hospitals in Dublin, primar-
22	ily in the area of pediatrics, did you not?
	A. That is right, yes, I did one

year of internal medicine.





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Q. And then in the summer of 1979 you came to Canada and became what is called a Post Core, that is to say a senior resident at the Hospital for Sick Children?

A. Yes.

Q. And in the year July 1980 to June 1981 you were the chief pediatric resident at the Hospital for Sick Children?

A. Yes.

Q. You then spent two further years at the Hospital, first as a clinical Fellow, and then as a research Fellow in endocrinology?

A. Yes.

Q. And you are now, as of the summer of 1983 in Montreal as you have told us?

A. Yes.

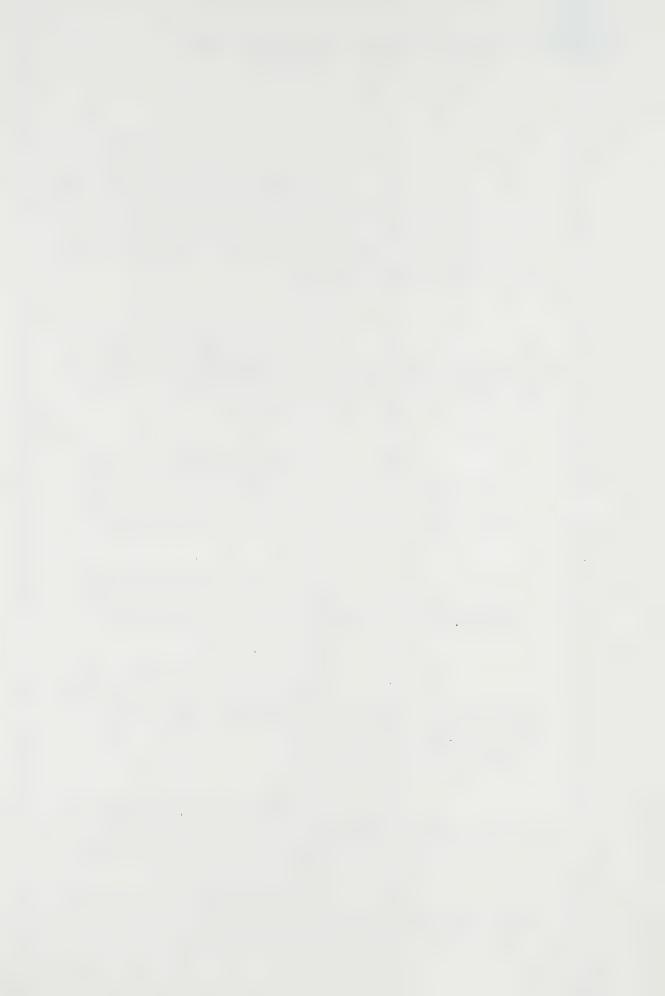
Q. Doctor, you have published in professional journals and presented papers at professional conferences?

A. Yes.

Q. And you are a member of the Royal College of Physicians of Edinburgh in Pediatrics?

A. Yes.

 Ω_{ullet} And of the Royal College of Physicians of Canada, also in Pediatrics?



Λ. Yes.

Now, as you know, Doctor, our interest here is in the period which covers your first nine months as chief resident at the Hospital for Sick Children, that is to say from July of 1980 to March of 1981.

Perhaps you could tell us first though, since you were the chief resident, how one becomes that and what one's duties are as the chief resident?

A. The situation as I understand it is that one applies for the associate year, which is the final year, or the extra year of the training, higher training in pediatrics. Then one of whatever number of associate residents is approached by usually the physician in chief, Dr. Carver, or I guess there is some input from the Department of Medical Education, and one person is asked to become chief resident for the following year.

Q. Yes.

A. And I accepted that. The actual role of the chief resident breaks down into, I guess two main areas; there is a medical area and there is an administrative area.

Q. Yes.

In both of these areas you



enlist the assistance of associate chief residents,

there was a time I think when there was only one

chief resident and no associate residents. So the situation as regards the administration is basically in organizing rotations, arranging adjustments to the overall rotations to suit people's individual needs.

Q. Yes.

A. And sort of smoothing the system for the junior residents and whatever. Then from the medical point of view it has an educational role from your own point of view, in that you spend a considerable portion, you are doing what is called electives, and you can do various amounts in various specialities working as a Fellow and so get more education in those areas. You are also obliged to do, some time in the Intensive Care Unit and as the associate resident you are obliged to spend one month on the general ward.

 Ω . Do you also act in a sort of quasi consultant capacity to junior residents in the Hospital?

A. Yes. That is the role that if the people are having a problem during the day, or even at nighttime, there is either myself or one of



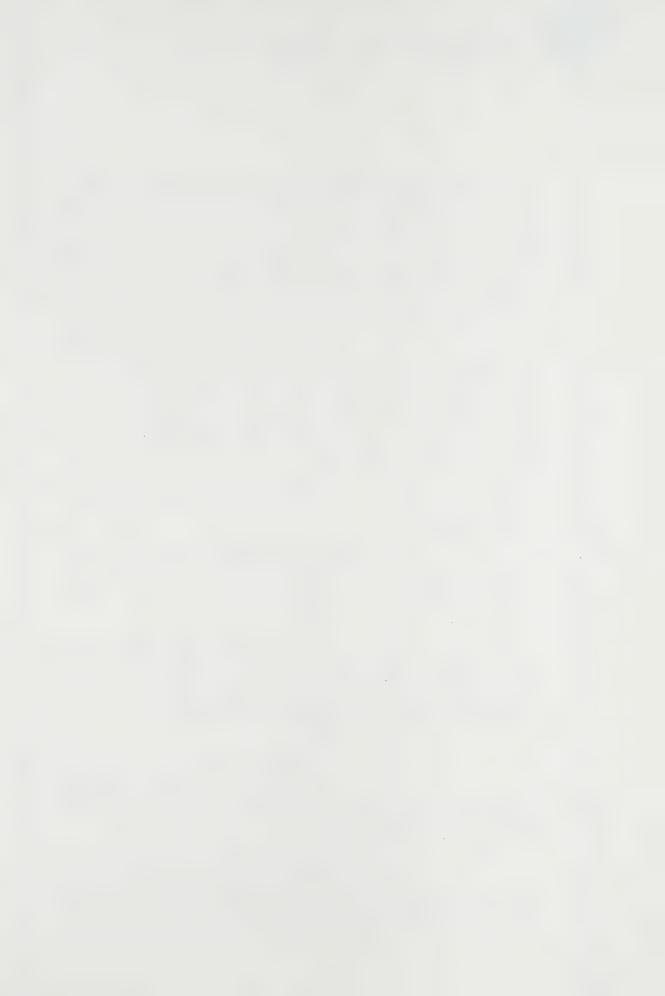
the associate residents there to consult on the problem and offer our opinion. We also are responsible for the role of transferring the patients that we consider necessary down to the Intensive Care Unit or organizing admissions in an emergency.

Q. Now, I understand in addition, Dr. Costigan, one of the responsibilities of the chief resident is that when he is on duty, or when he is on call, it is he who is in charge of the arrest team, is that so?

A. That's right, he supervises the arrest team.

- Ω . And is in charge of that team when it responds to Code 25 calls?
 - A. Yes.
- Q. And I take it is in charge of the resuscitation efforts that are conducted by the team when they get to the site of the call?
 - A. Yes.
- Q. I want to come back later to that aspect of your duties, but I thought we should mention it at this point.

Dr. Costigan, I understand that the general pedicatric residents at the Hospital rotate through the several divisions of the Department of



Pediatrics, does the chief resident also follow such a rotation?

A. The chief resident rotation really is in the main part, in the elective rotation, so that if he has a particular interest in one area or two areas, or three areas, he can divide up the year into that sort of rotation that suits himself.

 Ω . He makes his own choice as to how his clinical activity is spread?

A. With adjustments for other people to be present for the same rotation and things like that.

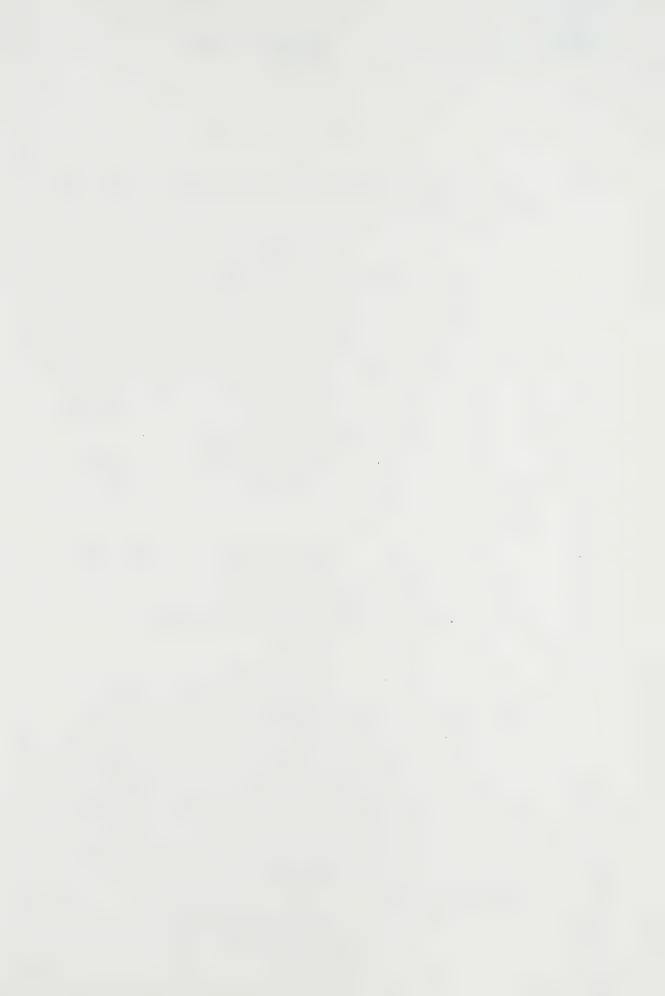
 Ω . In the period from July 1980 to March 1981, did you have any period of rotation on the Cardiology Division of the Hospital?

A. No.

Q. One other thing by way of general structure and organization, Dr. Costigan.

When a resident is assigned to a particular division, let us say the Cardiology Division of the Department of Pediatrics, what is his or her line of responsibility, or reporting, if he encounters a problem or a difficulty of any kind in the course of his clinical duties?

A. The beginning, if it is a junior



resident or whatever the junior residents usually have assigned individual patients, and if the nurse has a problem with one of their patients they report to that junior resident, and if he is not happy with it will report to a senior resident who may be covering that whole side of the floor, or both of those sides 4A and 4B.

Q. Yes.

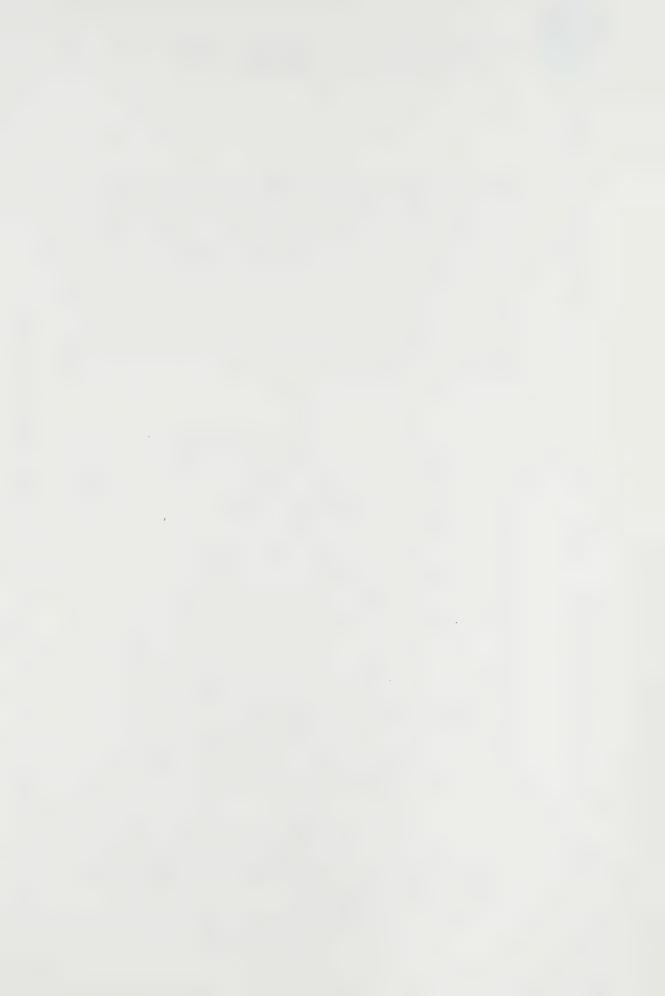
And each sub-speciality then has assigned one of its Fellows to clinical duties, usually on a month to month basis, or two months on or two months off, or that type of situation, depending on the number of Fellows. So usually if the senior resident is in doubt, or has a concern, he will report directly to the clinical Fellow. There is also a staff person assigned, so if the clinical fellow is having any concern he can report to the staff resident on for that month.

Q. So a reasonable hierarchy represents that reporting structure?

A. Yes.

Q. Junior resident to senior resident, to Fellow, to staff man, to presumably the head of the division?

A. Presumably, yes.



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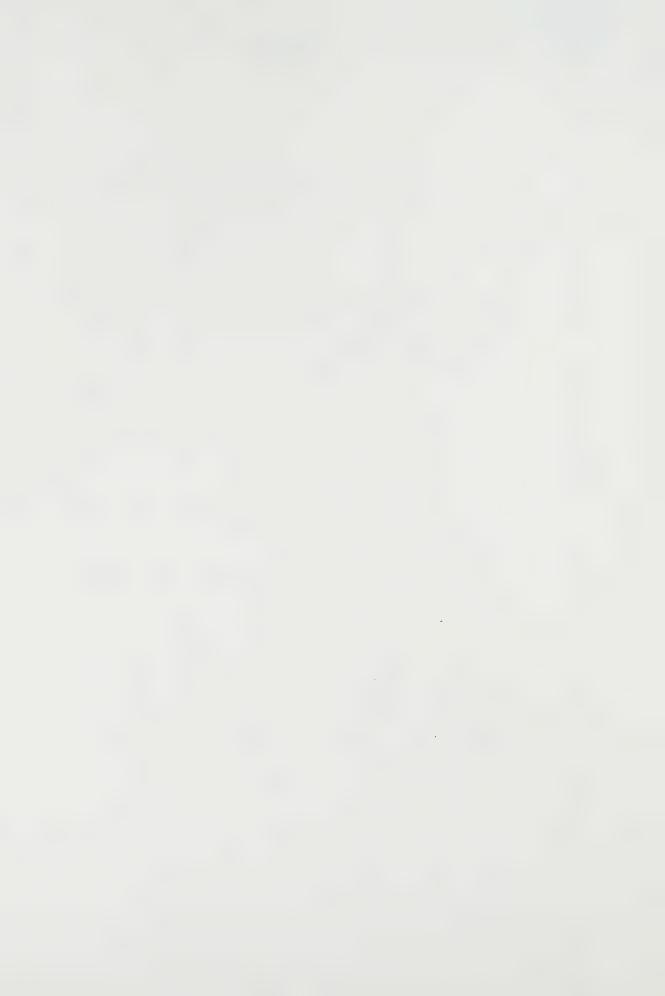
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			Ω.		And	from	him	eventually	to
Dr.	Carver	as	head	of	the	Depai	ctmer	nt?	

- A. I am not sure of that point.
- Q. Now, is the same true of the chief resident when he is working on or involved in the clinical activities of a particular service, does he follow that same reporting pattern?
- A. I am not quite sure I understand. If he is involved in his elective role as a fellow.
 - Q. Yes.
- A. He fits into the position of the Fellow.
 - Q. He plugs in at the Fellow
 - A. Yes.
- Q. Now, we have also heard that the chief resident has relatively easy and regular access to the Chief of Pediatrics, Dr. Carver?
 - A. Yes.
- Q. If you became involved, and we will come to such a situation in a little while, but if you became involved in or aware of a situation that seemed to raise problems in a particular division of the Department of Pediatrics, such as



Cardiology, how would you decide whether to take that problem to the staff people in that Division, or to Dr. Carver?

A. If it was a situation dealing with patient management and that sort of situation,

I would go to the physician responsible in the

Cardiology Department first.

Q. What kind of problem might you take directly to the Chief of Pediatrics?

A. I guess if I was getting an unsatisfactory response, or if I was still unhappy, or I felt it was of a magnitude that he should know or ---

Q. During the latter part of 1980, Dr. Costigan, were you aware that there had been a number of deaths on the Cardiology Wards 4A and 4B?

A. Yes, I was aware of those deaths on the wards, yes.

Q. Was that merely a routine awareness that there are predictably deaths on any ward, or was there a particular awareness that there were deaths on the cardiology ward that were a matter of concern to some people?

A. There was a concern by myself. When we had started off as chief resident and



associate chief resident, we had undergone some training in resuscitation before we started and during the initial months we had double coverage, that there was always two people there for the resuscitations. When there was some arrests and that situation, I'm not sure at what time of the year, but I remember sort of reviewing the situation again with the individual associate and chief residents just to see what they were doing was appropriate. It appeared to be appropriate, the resuscitation appeared to be appropriate.

Q. Did it appear to you through the late summer, fall, early winter of 1980, that there was a substantial number of deaths occurring on the cardiology wards?

A. It is difficult to know what you mean by "substantial". I mean medicine is full of fluctuations up and down and it is very difficult to know what has increased or decreased.

Q. And I take it you had no prior experience in that sort of role anyway at that Hospital to serve as a bench mark?

A. I had worked for two years previously in different hospitals in that same capacity, but I had not worked in that capacity in





the Hospital.

 Ω . Again I want to come back later to some of those deaths which were the subject of resuscitation efforts.

Let me take you now to the month of March of 1981, and in particular to the night of March 11th to 12th and the death of a patient called Kevin Pacsai. As at March 11th, were you aware that there had already been four deaths that month on Wards 4A and B, deaths on the 6th, 7th, 8th and 9th of March?

A. My only knowledge was that there was one death, I think I was involved with one other.

Q. And that was the death of Jordan Hines on March the 8th?

A. Yes.

Q. But you did not have an awareness there had been three others that month on the ward?

A. I can't really remember whether I was aware at that time or whether I became aware. later, it is very difficult now for me to remember when I became aware of it.

Q. You don't recall whether that





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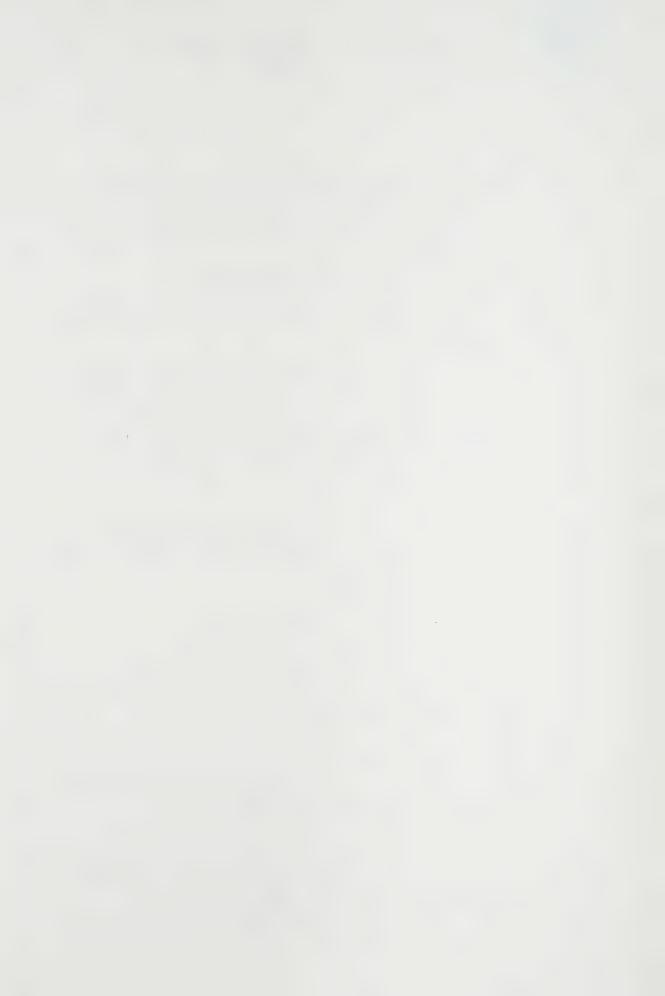
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1 2 3 4 that time? At that time? A. 5 0. 6 Doctor ---7 A. 8 0. 9 10 11 A. Yes. 0. 12 Α. 13 it was Baby Manojlovich. 14 Q. Manojlovich? 15 Yes, Manojlovich. 16 0. 17 18 Yes. 19 20 Α. Yes. 21 Ω. 22 23

LTD.

had been a matter of any discussion or comment among those people involved in resuscitation efforts at If you have no recollection, No, I really can't remember. Now, in the early hours of the morning of March 12th, that is to say 2:30, 3 o'clock, 3:30 were you on the cardiology ward? And why were you there? There had been arrest, I think That child had arrested in the small hours of the morning of March 12th? And you had been in charge of the arrest team on that occasion, had you? Now, we know, Dr. Costigan, that the Manojlovich baby died about 3:30 in the

morning, 3:30, 3:35, and I take it that is when the



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resuscitation effort had cease	d	?
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A. Yes.

Q. I take it that following the cessation of the resuscitation effort you wrote the arrest note in the chart?

A. Yes.

Q. Prior to leaving the ward, after having done that, did you have any contact with Baby Pacsai?

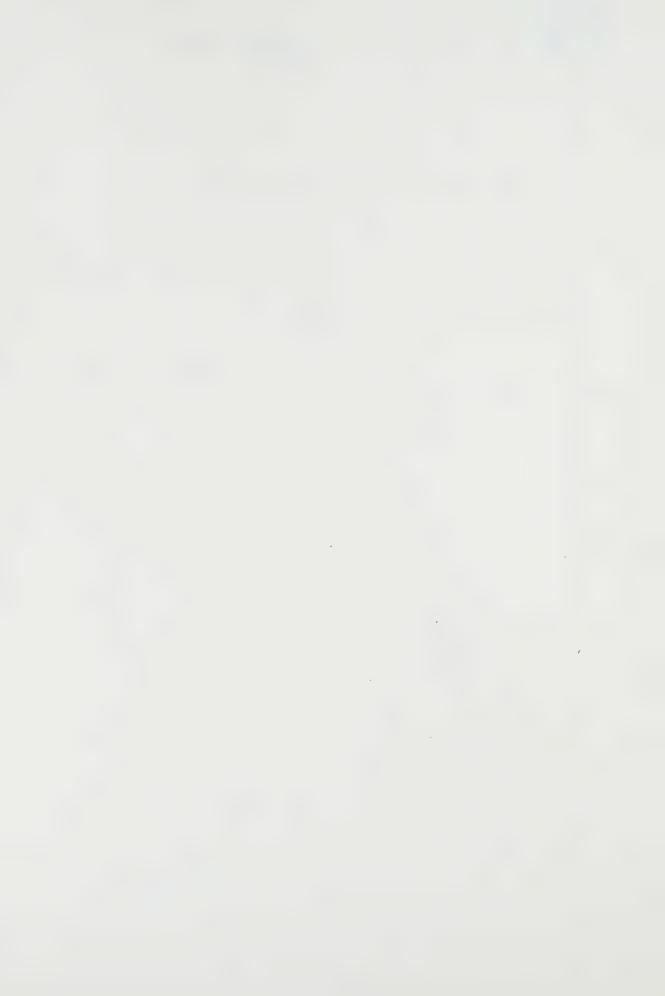
A. Yes, myself, and I think a senior resident who was probably Dr. Kantak and the cardiology Fellow who was in for the other event were asked by one of the nurses, she expressed a concern about Pacsai. So we all walked into the room where the baby was and the clinical Fellow and the cardiac resident began looking at the record so I left them to that and I went down to the ICU.

 Ω . You left the resident who was on rotation in that area and the cardiology Fellow to do their thing?

A. Yes, I thought they probably had more expertise in that area, I don't know.

Q. Did you understand what was the basis for the nurse's concern at that time?

A. I cannot recollect now what



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the concern was, I can't remember now.

O. So you left the ward ---

THE COMMISSIONER: You saild something, you think it was ---

THE WITNESS: I am just trying to remember, I can't really remember what it was.

MR. LAMEK: Q. So you left the ward leaving the other two to take care of whatever the problem was with Baby Pacsai?

A. Yes.

Q. Did you see the Pacsai child later that morning, or further into the night?

A. Yes, yes.

Q. And how did that come about,

A. My recollection was that I
was called from - I am not quite sure whether I
returned spontaneously to the ward or whether I was
called from my room, but one or the other, there was
a concern anyway about the baby's condition. I went
to the chart and examined the baby and wrote a note.

O. Doctor, it would obviously be helpful to you if you had the chart available. I wonder if the Registrar could let Dr. Costigan have the Pacsai chart. It is Exhibit 106,

Mr. Commissioner.



signature?

THE COMMISSIONER: Doctor, you saw the child back in the ward?

THE WITNESS: Yes, yes.

MR. LAMEK: Q. Now, page 63 of that Hospital record, Dr. Costigan.

A. Yes.

Q. There is a note over your

A. Yes,

Q. The top left hand side of that note is "0530 hours", I take it, is that the time that you arrived at the ward or were summonsed to the ward, or was it the time you wrote the note, do you recall now?

A. My habit is to write the time of the event rather than the time I write the note.

No, I can't recall definitely.

Q. And the note then records that you were asked to see Kevin Pacsai because of anxiety about episodes of bradycardia down to 50 to 60, alternating with rates of 150. You have a notation as to the rhythm strip, the child was connected to a cardiac monitor, was he?



B BB/cr

B/cr

A. Yes, to a little electronic cardiac monitor, could produce pieces of paper that would have a record of the strip if you wanted.

Q. And your note I take it records what you saw in the rhythm strip, or something of what you saw, slight prolonged PR. Now, can you explain that to us, please.

A. The PR is a measure really of the time that it takes the electrical activity to get from the collecting chambers, the atrium to the pumping chambers, which is the ventricles and it reflects the conduction system part of it.

Q. All right. You have under that, is that sinus bradycardia?

A. Yes.

Q. And then query sinus or nodal tachycardia, intermittent two to one block, a delta, meaning what, a diagnosis?

A. Yes.

Q. Sick sinus query dig. toxic Plan discuss with ICU Staff, Cardiology Fellow, transfer to ICU for observation, hold digoxin.

That is the note that you made having examined the child and looked at his rhythm strip at 5:30 in the morning of March 12th?



. .

A. Yes.

Q. Okay. Now, I am interested first in the diagnosis. I take it that is what is known in the trade as a differential diagnosis, you are considering what possible explanations there could be for the observations that you have made?

A. Yes.

Q . All right. Two things appear to have occurred to you: Sick Sinus - Syndrome I take it?

A. Yes.

Q. Or possibly digoxin toxicity. Now, what in particular about this child's condition and your observations prompted you to think of those two possible diagnoses?

A. It was based I guess upon the rhythm abnormalities that I saw on the strip and the history of the alternating rapid and slow rates and the evidence of interference with the conduction system as evidenced by the prolonged PR and the two to one block, the intermittent block.

Q. I take it that you recognize that heart block was one of the known symptoms of digoxin intoxication?

A. Yes.





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	of the dosage tha
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	Q.	Yes.	Was	it tha	at t	hat	
prompted	you to consi	ider dig	oxin	toxic	ity	as a	
ossible	explanation	for what	t you	were	obs	serving	J?
	Α.	It is	diff	icult	to	isolat	:e

- Q. But that was one of the things?
- A. One of the things, yes.
- Q. Are those rhythm variations and the intermittent appearance of heart block also symptomatic of Sick Sinus Syndrome?
- A. Yes, this alternation, this sinus really is responsible for initiating the rhythm or the beat and this variation from rapid to slow and back again is compatible with a Sick Sinus.
- Q. I take it that before even contemplating the possibility of digoxin toxicity you were aware either from the chart or from the nurses present that the child was indeed on a regimen of digoxin?
- A. Yes, I would presume I checked into that.
- Q. Yes. Did you make any review of the dosage that was prescribed for him or any determination as to its appropriateness?
 - A. I'm sure I looked through the



notes and saw what was there but I can't remember thinking it was too high or too low. I probably, you know, I just can't remember at this point in time. My usual format is to do that.

Q. But the order that is reflected in your note at 5:30 is hold digoxin?

A. Yes.

Q. Was any physician with you at the time that you examined the baby at 5:30 in the morning?

A. Yes, Dr. Kantak was present.

My recollection is that I discussed this with him

and we spoke about digoxin and that's why I wrote it

in the progress note to hold digoxin because that's

the usual form of events you sort of suggest and

the residents comply.

THE COMMISSIONER: Dr. Kantak was a - Kantak is it?

THE WITNESS: Yes, Dr. Kantak.

MR. LAMEK: K-a-n-t-a-k, sir.

THE COMMISSIONER: He is a resident,

is he?

THE WITNESS: He was a senior resident covering that ward that month and he was on call that night.



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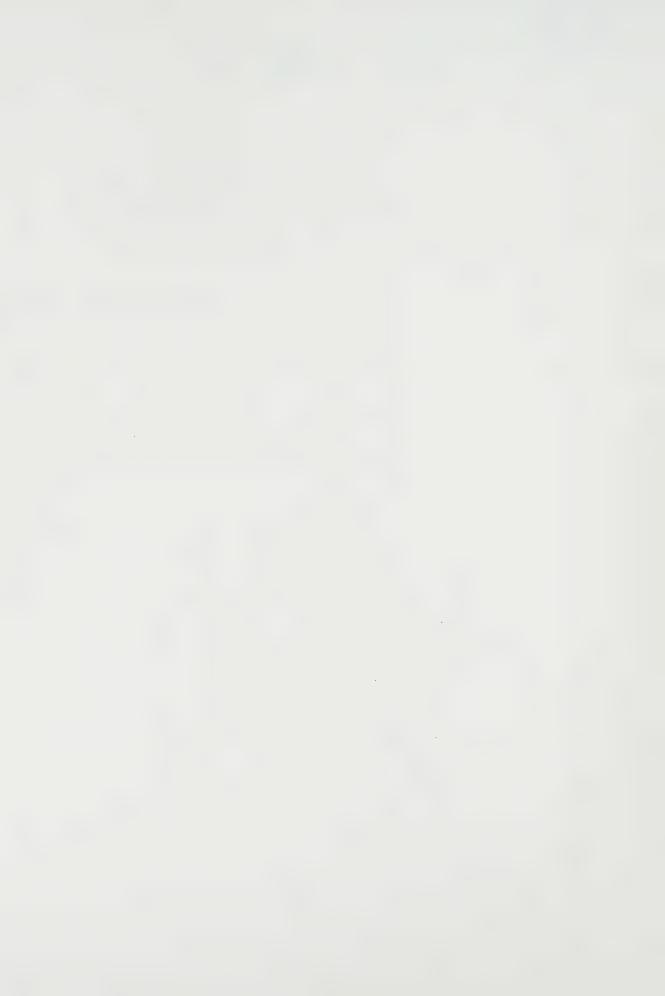
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	MR. LAMI	EK: Q.	Thank	you.	Did	уот
also discuss	with Dr. I	Kantak yo	our di	fferent	cial	
diagnosis of	Sick Sinus	Syndron	me and	digoxi	.n	
toxicity?						

- Α. I can't remember the specifics.
- Q. Yes.
- Α. You know, it would be my format to do that.
- 0. Do you recall whether he had any other candidates to offer as an explanation for this situation?
 - No, I don't recollect any other.
- 0. All right. Now, your note records that you were going to discuss the matter with the ICU staff and the Cardiology Fellow and perhaps transfer the baby to the ICU for observation. What did you do with respect to that intention?
- Well, I took a portion of the Α. rhythm strip that I had been looking at myself upstairs.
 - Q. Yes.
- Α. And brought it down and discussed it with the Senior Fellow in the Intensive Care Unit.
 - That was Dr. Ann Lynn? Q.
 - A. Yes.



		Q.	Yes. D	id you	ı dis	scuss	with
her	the	differential	diagnoses	that	you	had	formulated

A. I can't remember saying words to her, but yes I would imagine that I did. I mean, that is the whole purpose of the exercise.

Q. Do you recall whether she disagreed or had any other explanations to offer?

A. I don't remember any other suggestions.

Q. All right. Were arrangements made with Dr. Lynn to have Baby Pacsai transferred to the ICU?

A. Yes.

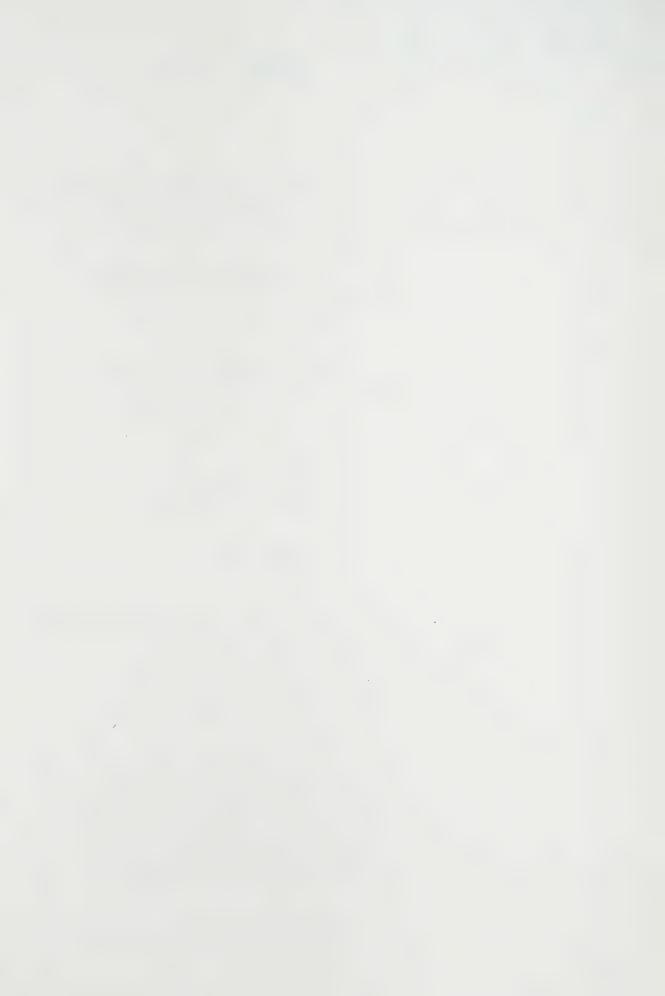
Q. All right. Now, does your interest in transferring the baby to the ICU suggest that at 5:30, 6 o'clock, whenever it was, on the morning of March 12th you considered the baby to be in a critical condition?

A. It is difficult to judge whether it was one thing or another but there was a collection of things I think, circumstances that caused me to transfer the baby. I was concerned genuinely about the child's condition about the arrhythmia. I was a little anxious because the nurses and everthing were upset and, you know, we



had had one arrest previously that night. So, there was both medical indications and sort of social indications or whatever.

- Q. Manojlovich had just died a couple of hours earlier?
 - A. Yes.
- Q. That's right. Now, having made those arrangements with Dr. Lynn, did you then return to the ward?
 - A. Yes.
 - Q. The Cardiology Ward?
 - A. Yes.
- Q. And what did you find on your arrival?
- A. I had been told that the child just had an apneic episode or a bradycardia episode, a slow heart rate associated with the cessation of breathing for a few moments and had recovered by the time I arrived.
- Q. He had recovered from the apneic spell by the time you got back from the ICU. Did you attach any particular significance to the fact that in your absence the child had suffered an apneic spell?
 - A. Well, it was a reconfirmation



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that the child needed to be in the Intensive Care Unit. It was an indication of his instability I quess. 0.

All right. Did that spell serve to corroborate either of the differential diagnoses that you had formulated?

Because the episode was Α. associated with a recordable heart rate of a bradycardia about 40 to 50 it didn't really lean in either direction to one of the diagnoses.

Q. In any event, the child was then transferred to the ICU?

A. Yes.

Did you take him there?

Yes, myself and I think one or two of the nurses.

Q. All right. Do you remember which nurse

Yes, I think it was Nurse Nelles and my other recollection was that it might have been the night supervisor as well.

Q. Now, at page 64 of the chart, Dr. Costigan, there is a note headed "Transfer Summary". Is that your note?

- Α. No, it is not my writing, no.
- 0. All right. Do you recognize



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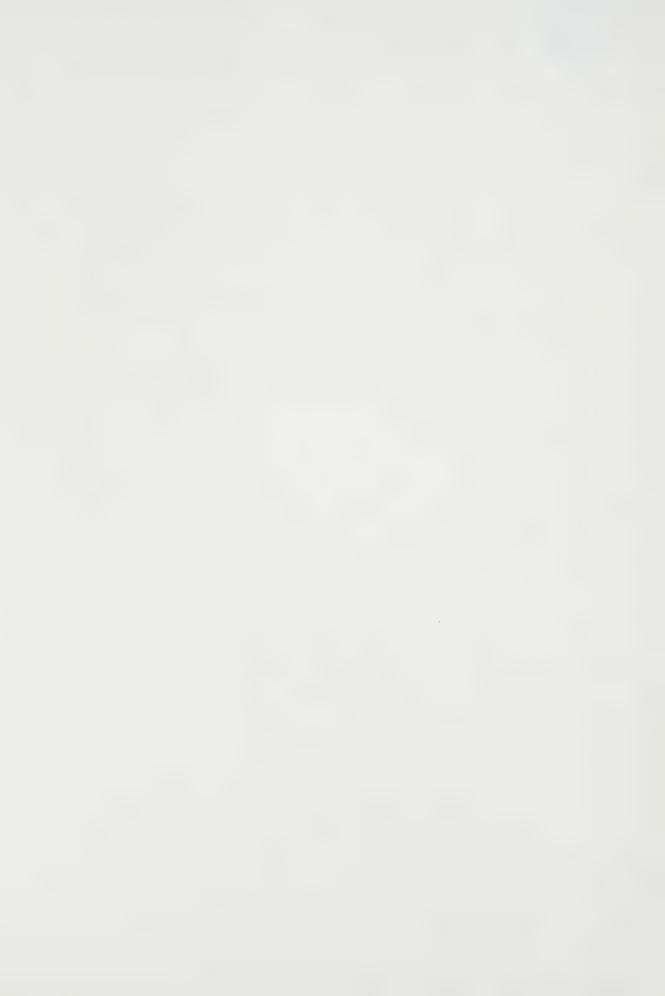
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the handwriting	?
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- A. It has been a long time.
- Q. If you don't, it doesn't usually matter.
- A. No, I don't recognize the writing, no.
- Q. All right. But on page 66 there is some handwriting that I think you will recognize.
 - A. Yes.
- Q. Is that the ICU admission note that you wrote in the chart at the time of the child's admission?
 - A. Yes.
- Q. All right. And in that note you summarize in very short order the child's history and the circumstances leading to his transfer and admission to the ICU?
 - A. Yes.
- Q. Okay. What at the time of that transfer, I take it you took the child down and got him settled in. Having done that, what was your assessment of the child's condition?
- A. The initial little period was involved, as you said, settling and getting



things organized, but the child appeared to be stable during the observation period that we were there and over the subsequent hour or so the child seemed to have no further episodes of arrythmias and had no apneas and, you know, was clinically stable.

0.

page 66, Dr. Costigan, you have noted your impression.

"Impression - brady arrythmia secondary
to (1) dig. toxicity, (2) SA node,
sinal atrial node disease."

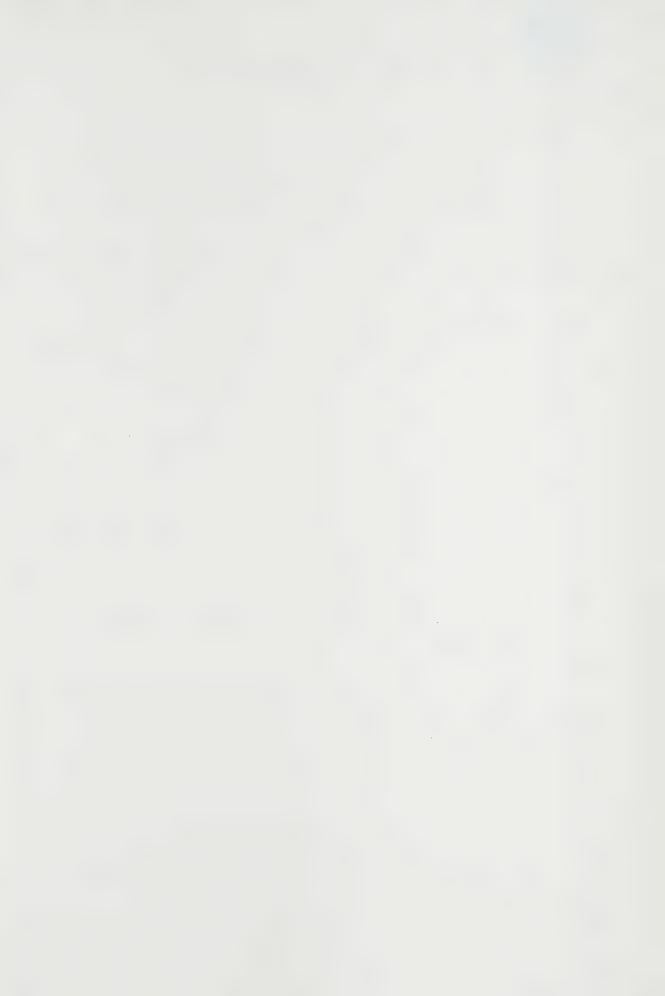
Now, towards the bottom of

Now, that interests me because of course your differential diagnosis was recorded on page 63. You had those two in the different order, you have reversed the order. Was there any particular significance for that or reason for reversing the order. Was digoxin toxicity assuming a primacy in your mind?

A. Not consciously as such. I guess the only happenings that had intervened was the apneic episode on the ward, so, that was the only possibility that could have changed my mind slightly.

Q. But you have no present recollection of having been leaning more towards digoxin toxicity?

A. No.





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Q. Than to Sick Sinus Syndrome?

A. No.

Q. Okay. Now, on page 77 of the record, Doctor, continuation sheet in the Doctor's order section, the top half of the page is taken up with orders written I believe by you. That is your signature?

A. Yes.

Q. And that I take it is after the child's admission to the ICU?

A. Yes.

Q. And among other things you ordered there a digoxin level this morning?

A. Yes.

Q. And constant cardiac monitoring. You had already ordered the digoxin be held while the child was back on the ward, had you not?

A. Well, yes, I had suggested in my progress note.

Q. Was the sample drawn for the digoxin level at or shortly after the time of the child's admission to the ICU?

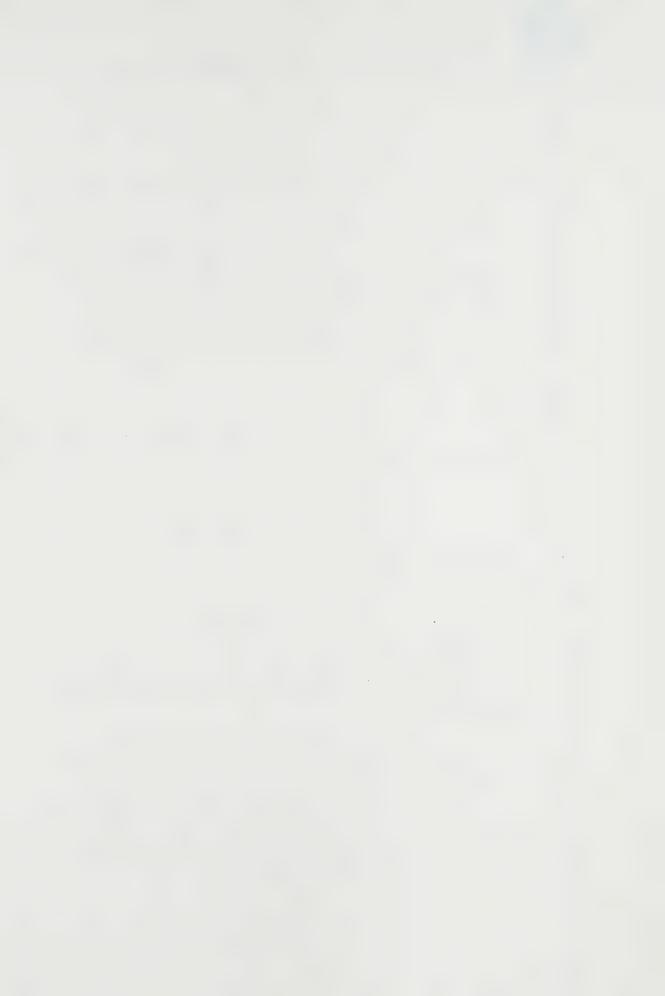
A. No.

Q. When in the normal course

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would that sample be drawn?

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It was usually, like, there was a sort of a routine morning, drawing of the routine bloods, or whatever. So, it would have been drawn in the usual course of events, some time around 8 or 9 o'clock.

Q. Okay. Was blood drawn from the baby at or shortly after the time of its admission to the ICU for any purpose?

Yes. I drew some blood for Α. electrolites and a CBC, complete blood count.

> 0. CBC, complete blood count?

A. Yes.

Q. You drew that blood from

the child?

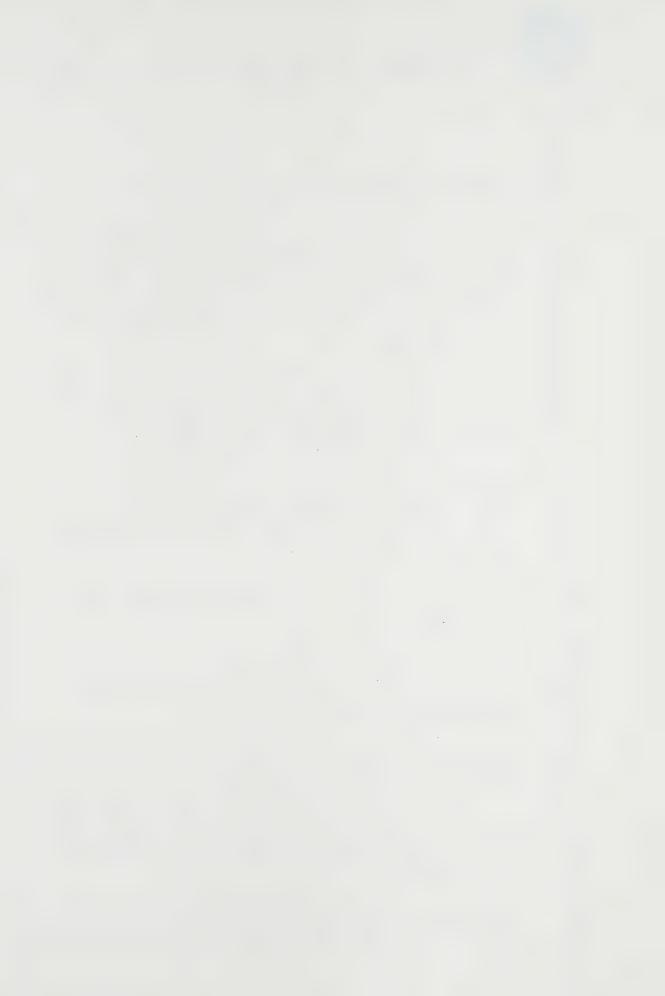
Α. Yes.

Q. And how long after his admission to the ICU would that be?

Not very long. My recollection would be about 15 or 20 minutes.

0. All right. Why did you want a complete blood count and electrolite measurement on this child?

The concern for the electro-Α. lites was natural because arrythmias may be associated



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with abnormalities of electrolites.

Q. Yes.

A. And the child was on diuretics at the time and may have had a low potassium. You know, that was the indication for doing the electrolites.

Q. And the CBC?

A. From the point of view of the CBC it is just a near indicator of infection or high white cell count.

Q. Now, can complete blood counts and electrolite analyses be done at any hour of the day or night at the Sick Children's Hospital?

A. Yes.

 $\ensuremath{\text{Q}}$. So, these samples were drawn and sent off immediately for analysis?

A. Yes, yes.

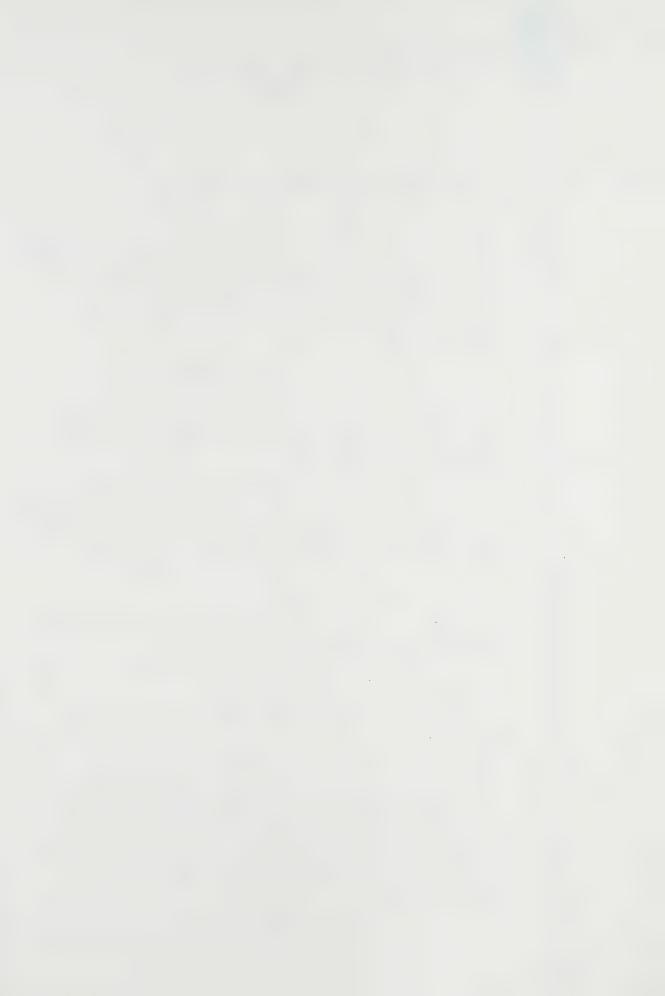
Q. When did you receive the

A. I cannot recollect exactly.

I don't remember getting the CBC results but

I remember getting the electrolite results probably,
to the best of my recollection, within an hour,
probably less.

Q. And that I take it would not



be by receiving the computer print-out that we see in the chart for those things, you would be notified, what, by telephone or something of that sort?

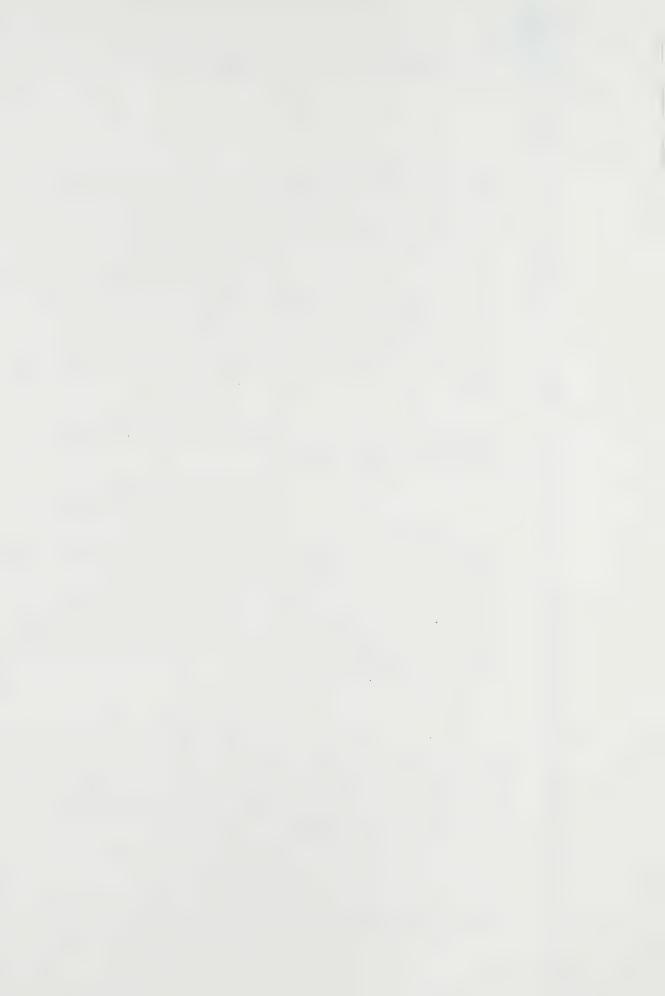
A. It is my recollection that there was a telewriter that the people in the Biochemistry could actually write in the result and it would be written out on a sheet of paper in the Intensive Care Unit.

- Q. Sort of like a telex machine or something of that sort?
 - A. Something like that, yes.
- Q. We know and indeed it is recorded on the official reports from the Biochemistry Department, page 83 of the chart, sir, that the potassium recorded in the sample that you sent down was 9 milli equivalents per litre with a notation that the sample was slightly hemolyzed?

A. Yes.

Q. As I understand it, a hemolyzed sample is one in which the red blood cells have been damaged or have been ruptured releasing potassium from within those cells into the serum?

- A. That's correct.
- Q. And because there is a high concentration of potassium within the blood cells



TORONTO, ONTARIO

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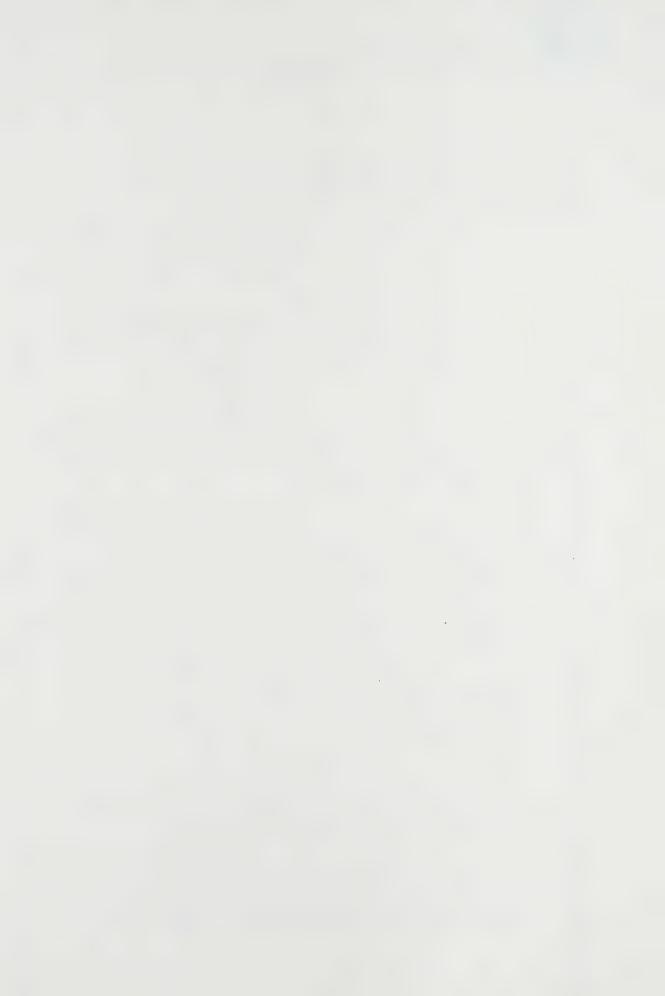
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themselves that has the effect of elevating the serum?

- That's right, that's correct. Α.
- Potassium? 0.
- Α. Yes.
- And it is the serum potassium 0. that you want to measure, is it not?
 - That's right. Α.
- 0. And therefore in a hemolyzed sample you are not getting a true level of potassium in serum, is that correct?
- No, that is correct, because the hemolysis usually occurs either during the removal through a small needle or through a small clot or something in the specimen or some damage to the actual specimen in transit to the laboratory.
- Q. So, in a hemolyzed sample your expectation would be that the level would be artificially high?
 - Α. Yes.
- 0. But nevertheless I take it the level of 9 was extraordinarily high?
- Yes. It is difficult to judge the subjective phenomenon of slight hemplysis in a technician's eye but it was more than I had





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do?

		Ç	2.		The norm	mal p	otass	sium	level	L
as	I	understand	it	is	anywhere	from	1 3.5	to!	5.5?	

A. Yes.

experienced with slight hemolysis.

Q. And therefore a level of at least twice the normal range was reported to you and you weren't sure that could all be accounted for by the hemolysis?

A. Yes, it is not quite the upper limit of normal, but yes.

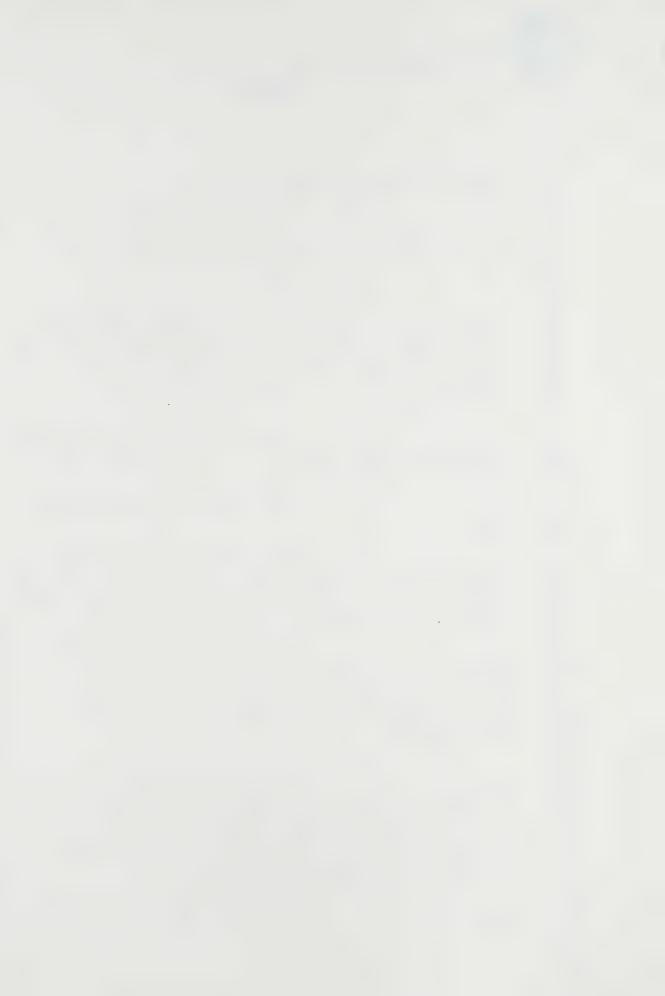
Q. All right. So, what did you

A. So, I immediately took another sample and sent it down super start or whatever, down to the laboratory for it to be done immediately.

Q. All right. Now, while you were awaiting the results of that second sample, Dr. Costigan, did you have any discussion with a Dr. Schaffer?

A. Yes. Dr. Schaffer is the Cardiology Fellow and his responsibility that particular month was looking after the cardiology patients in the Intensive Care Unit.

Q. And was he like you on night duty?



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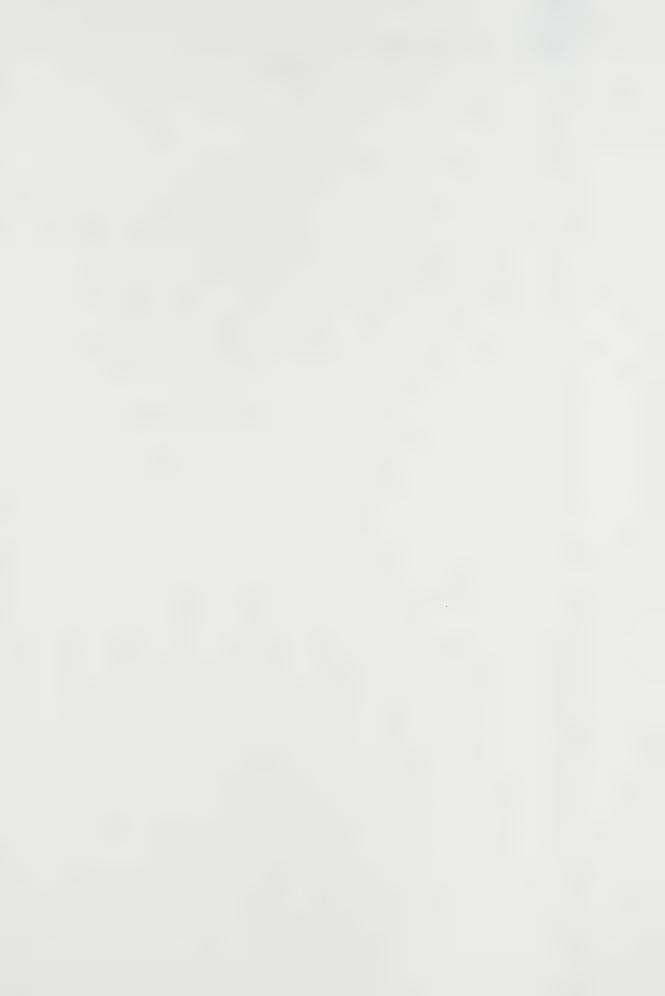
A.	No
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Q. How did he happen to be there?

He had arrived in, I guess he A. had a busy day, so, he had arrived in at about 7 or a quarter to 7 or whatever in the morning.

> All right. Q.

A. And that's when I spoke to him.



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		ζ	2.	At	approximately	7	0	clock	in
he	morning	you	saw	him?					

- Α. Yes.
- He was a Cardiology Fellow, you
- Yes, I think he may have had his Α. second or third year of cardiology. He was a quite senior Cardiology Fellow.
- 0. What discussion did you have with him about the Baby Pacsai, if any?
- We went through the story and I explained the story, what had happened to one of their patients during the night, and how we had this high potassium, and about the rhythm abnormalities were not exactly compatible with the high potassium. I brought up the question of, well, I mean, do we treat this. I had the impression that it was going to be high, you know, when it came back, a true bill, it was going to be high and should be treated. He felt, well, the child has had arrhythmias, we really should treat and we decided that we would treat the potassium.
- Was there any discussion with 0. Dr. Schaffer about your differential diagnoses of sick sinus or digoxin toxicity?





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TORONTO, ONTARIO

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		Α.,	Yes,	that	would	have	been	part
f	the	discussion,	really.					

- Did he disagree with your 0. thoughts about the explanation?
 - No. Α.
- 0. Did he have any other possible explanation to add?
 - A. No.
- 0. Other than the possible effect of the elevated potassium that you were anticipating?
- Sorry, yes, he had no other suggestions to make, really. I do not know who suggested but he suggested giving atropine - one of us give some atropine, that was really all he suggested.
- 0. Was atropine administered to the child?
 - A. Yes.
- What was the effect of that? Q. First, what was its purpose?
- Α. Its purpose really was to increase the heart rate. What it does is it actually increases the rate so it counteracts the bradycardia episodes that we had been seeing. It seemed to stabilize things. The rate increased and the child



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remained stable.

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TORONTO, ONTARIO

Q. Was Dr. Schaffer still with you when you received the results of the second sample that you had sent down for electrolyte?

It is difficult to remember. Α. I do not think so.

Q. When that sample came back I understand it recorded a level of 7.7?

> Α. Yes.

THE COMMISSIONER: That is potassium,

I take it?

normal rate?

MR. LAMEK: Potassium, yes.

Q. As you had expected, above the

A. Yes.

Q. What did you do?

Well, I initiated some treatment Α. for this high potassium.

> 0. How do you treat high potassium?

Α. What we did was, we did a few little avenues, a few approaches. One effective approach is to give an enema of an exchange resin which exchanges sodium for potassium across the bowel wall and that actually removes potassium from the body.





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TORONTO, ONTARIO

There are a couple of temporizing Α. measures that give you some time until the potassium is actually removed, and that is increasing the concentration of glucose that has been given to the child. The theory is that the child's normal pancreas would respond with extra insulin and the insulin pushes the sugar into cells and the potassium would be taken with the sugar into the cells. They were the type of measures we istituted.

> 0. You say "we"?

A. Well, it is difficult to remember I guess I wrote the orders and I was responsible for the orders.

Q. Had you discussed those measures with Dr. Schaffer?

> A. My recollection is yes.

And the two of you agreed that 0. that was the course to be followed if the potassium came back elevated, as you expected it would?

> Α. Yes.

We have taken this - the last 0. time that we were able to fix on was about 7 o'clock when Dr. Schaffer arrived. Can you help us, what time was it by the time you had taken these various measures





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to try to reduce the potassium leve	el in the child?
A. I think it wa	as - there is a note
about 8 o'clock, I think it was an	order being given
at 8 o'clock - just going through t	the chart, whether

the nurse's records are --

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0. Well we can at least know this much Doctor, it was between 7:00 when you first saw Schaffer, approximately 7:00, and 8:45 when the arrest occurred?

Yes. My impression is that there was somewhere in the chart I think the nurse's record of having changed the intravenous to the dextrose and giving the enema was at 8 o'clock. I cannot find that at the moment, but --

Perhaps that does not hugely 0. matter. At least we have a bracket on the time.

Did you ever actually leave the ICU and Baby Pacsai before the arrest occurred?

My recollection is no. I went out and back to the phone, I phoned the laboratory or things like that, but never left the ICU.

On page 66 of the chart we have Q. looked at your admission note. On page 67 there is a further note over your signature which I take to be the arrest note?

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similar.

is it?

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TORONTO, ONTARIO

- Q. That, I take it, was written after the baby had been pronounced dead?
 - Α. Yes.
- I do not know whether you have had a chance to cast your eye over that, Doctor. it it reasonably and accurately summarizes the events that occurred from and after 8:45 in the morning of the 12th of March because the child became apneic, severe bradycardia followed almost immediately by ventricular fibrillation and your diagnosis was that perhaps consideration of the arrhythmias were caused by the elevated potassium?
 - Yes, that summarizes it.
- Q. You then recorded the administration of what, sodium chloride?
 - Α. Yes.
- Q. No response to those drugs. Defibrillation at 10 joules - bradycardia - mainly nodal - is that the same thing as junctional?
 - Α. It is similar. Yes, it is
 - Q. Not the usual pacemaking centre,
 - A. No, it refers, to my knowledge, to



TORONTO, ONTARIO

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the ventricular node, not to the sinus node.

Not to the sinus node.

We on other occasions have been through this note, Dr. Costigan. I do not think we need to go through it again. Do I put it fairly that the sequence of events that were observed during this arrest was a series of repeated changes from slow bradycardic rhythm to ventricular fibrillation, back to bradycardia, back to fibrillation, and so on?

Yes. I am not aware of how many series there were but, yes, that did occur on a number of occasions, two or three occasions certainly, during this arrest.

Q. Is that unusual, in your experience?

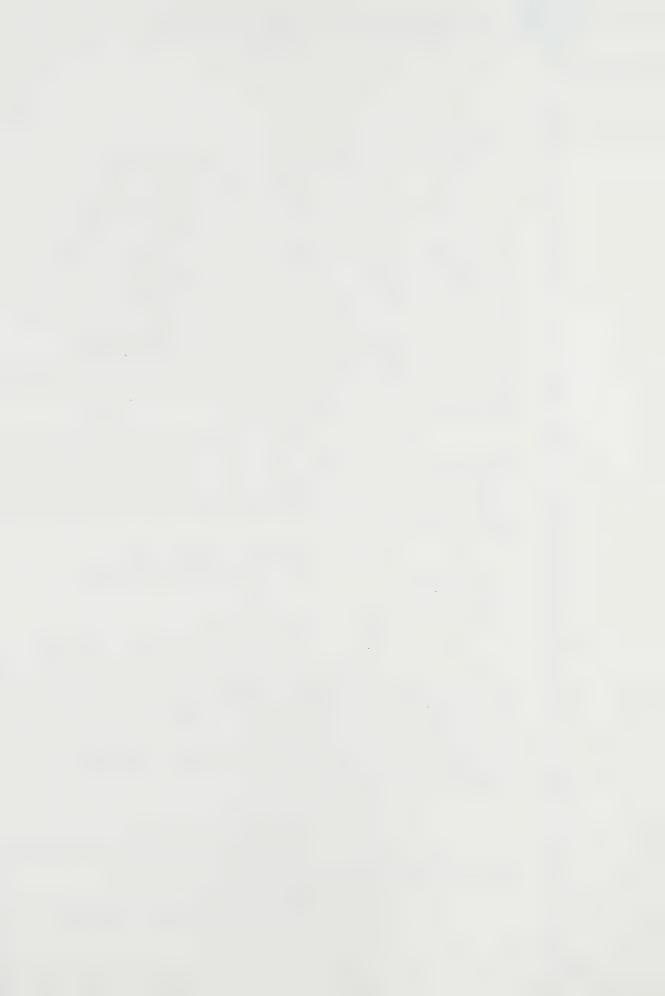
> Α. Yes.

We know from the note that you Q. defibrillated the child a number of times, perhaps as many as six times, and I take it that means you applied electric shock to the exterior of the chest, to stimulate the heart?

> Α. Yes.

And shock it out of the arrhythmic fibrilliation that was going on?

> Α. That is right, so it starts

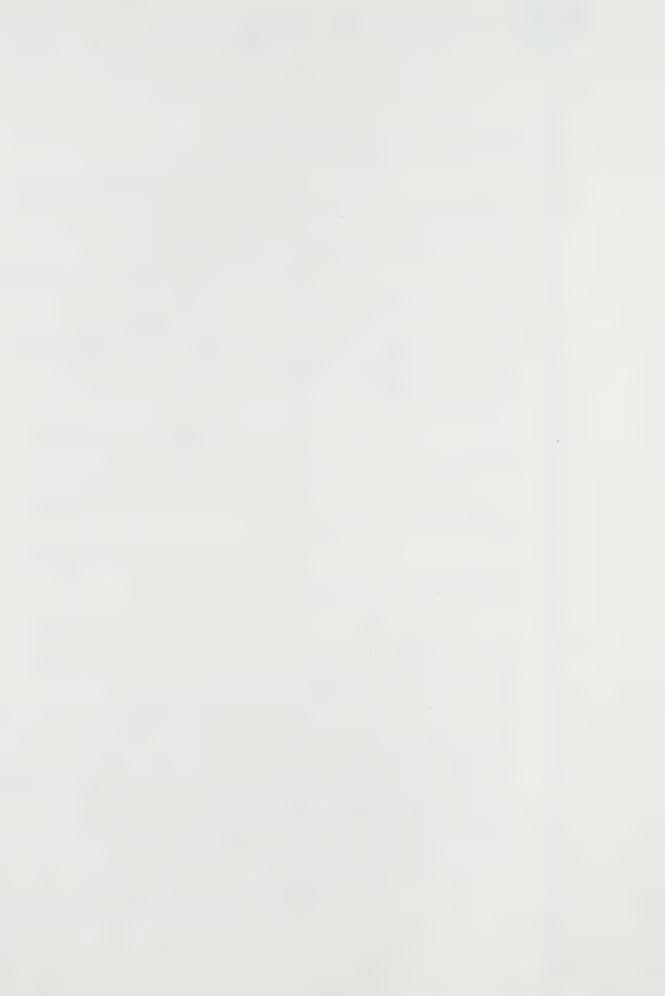


a fresh type of situation

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TORONTO, ONTARIO

- Q. Other than those defibrillation attempts by you, were there also spontaneous transfers from fibrillation back to slow rhythm?
- A. Yes. We were going on continuous rhythm strip on a monitor and it did appear that the child would go spontaneously from a rhythm that looked like ventricular fibrillation back to a relatively normal rhythm.
- Q. Is that spontaneous movement from fibrilliation to normal rhythm unusual?
- A. Certainly, in my experience, very unusual, and in my knowledge.
- Q. Was there anything else about this arrest that you regarded as unusual?
- A. There was nothing else at the time, I think, that I regarded as being unusual, apart from what we mentioned.
- Q. You apparently suspected at the time, and I am looking at line 3 of your arrest note on page 67, the possibility occurred to you at the time that the arrhythmias that you were observing were caused by the elevated potassium?
 - A. Yes.
 - Q. That, I take it, notwithstanding

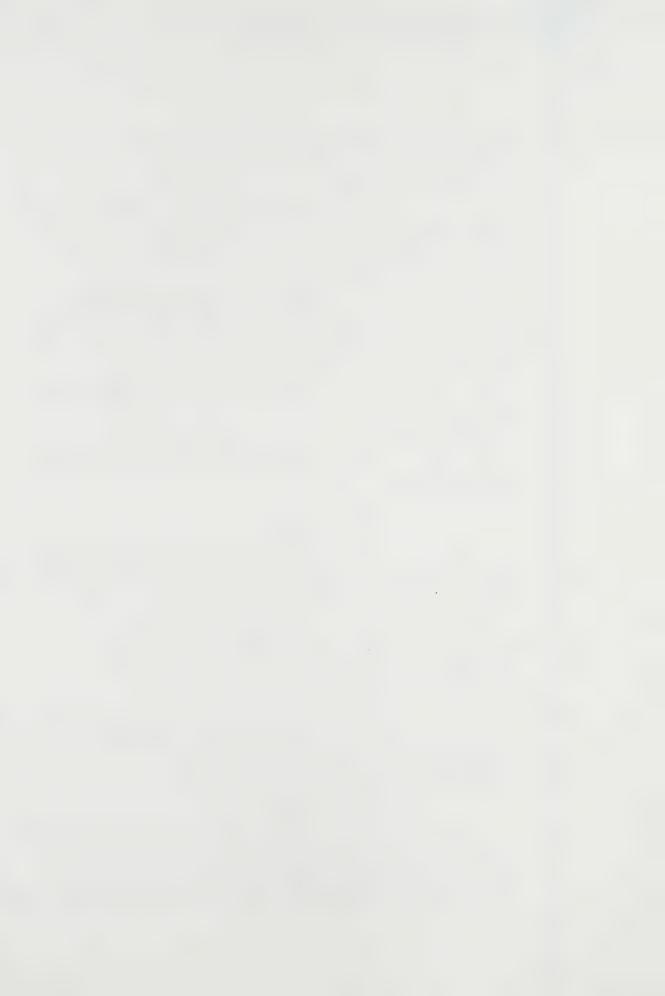


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that you had sho	ortly 1	before taken measures to reduce			
the potassium le					
I	Α.	That is right. I guess it was			
about three-quar	rters o	of an hour or half an hour. It			
is difficult to	know,	but, yes.			
Q	2.	Did you ever at any time get			
any effective pu	umping	response from Baby Pacsai during			
the course of th	nis res	suscitation effort?			
А	١.	I am just wondering whether I			
comment on that.					
Q		The indication is that C.P.R.			
was effective?					
A	•	Yes.			
Q		I take it at least that there			
was no sustained	respo	nse in the way of an effective -			
A		I cannot remember.			
Q		But there were several			
defibrillation e	fforts	?			
A		Yes.			
Q	• .	There was an insertion of a			
transthoracic pad	cemake	r at one stage?			
A	• 3	Yes.			
Q.		Is it fair to say that with this			

arrest, and I am sure with every arrest, you tried

everything you possibly could to bring this child back?





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	A.	Yes.	We ac	ctually	y tried	to	take
over the e	electrical a	activity	and	to ove	erride	the	inheren
electrical	l activity and	we did	get	some o	capture	but	it
	eem to make						

- 0. Eventually after about an hour and 20 minutes you gave up?
 - Α. Yes.
- Doctor, without being maudlin about it, that was your second unsuccessful arrest that night. You had had Manojlovich earlier in the night, and now Pacsai. It must have been a pretty dreadful night as far as Dr. Costigan was concerned.

Α. Yes.

I take it, though, from the final note - the final line of the arrest note, that following the cessation of that resuscitation effort on Kevin Pacsai you continued to be puzzled about that elevated potassium level. Your note at the bottom raises the question - how did the potassium get from 3.7, the earlier level that had been recorded, to 7.7 in less than 12 hours without any having been given.

Did it occur to you at that time that potassium might in fact have been administered to the child in that 12 hour period? I don't mean that in any sinister way.



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A. I know what you mean. I am just
trying to know at what point in time that morning or
that afternoon, or at what point during that day, I
extended this question to a possible answer of, you
know, was some given, or whatever. But sometime
during the day I did think that something could have
peen given.

- 0. That possibility did occur to you, but you are not quite sure just when?
 - Α. Yes.
- Let us look at one other thing. I take it that an elevated potassium level may be indicative of some kind of renal problem?
 - A. Yes.
- Q. Did you investigate that as a possible explanation?
- Well, from the limited renal func-Α. tion studies that . we had a BUN and things on the chart, they were normal.
- Q. And therefore that did not seem to be a likely explanation for the elevated potassium?
 - Yes, that is right.
- At some point did it occur to you that the elevated potassium level might be a result of the digoxin toxicity that you had suspected?



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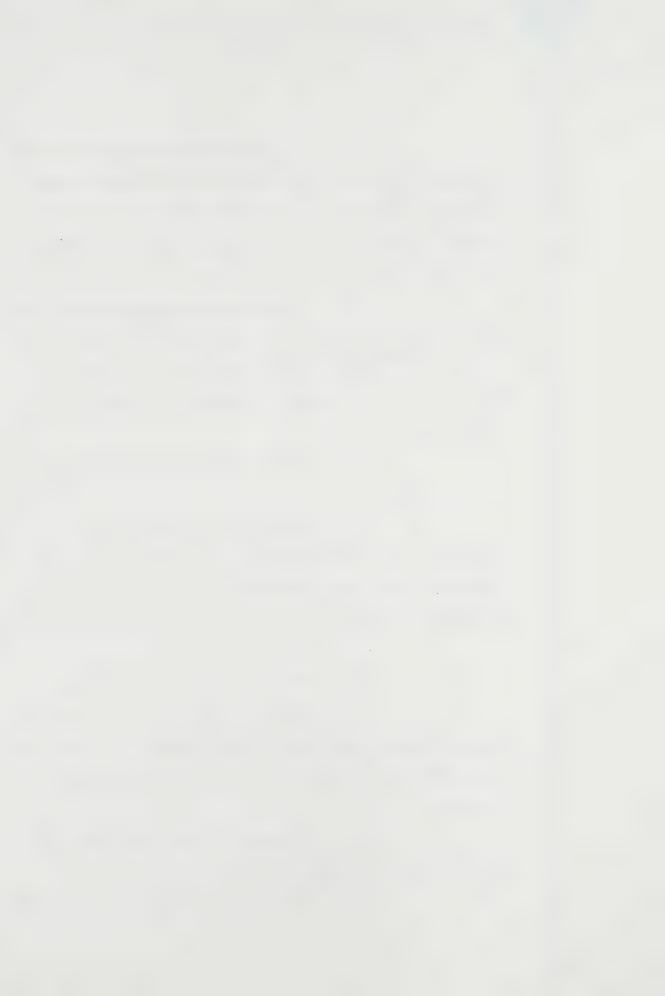
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	A	• My	experience	and my	knowled	lge
of digo	xin toxic	ity was :	really with	minimal	l degree	25
of digo	xin toxic	ity. I	was not awa	re of se	evere	
digoxin	poisonin	g actual:	ly causing	high pot	tassium	or
very hi	gh potass	ium at tl	nat time.			

- Is my understanding correct that Q. that is in fact one of the consequences or may be one of the consequences? Yes, that is my understanding of it as well. I am not an expert, but that is my understanding.
- 0. Believe me, Doctor, neither am I.

Did it occur to you that, by the administration of medications designed to lower the potassium level, the result may in some way have been to aggravate the digoxin toxicity that may have existed?

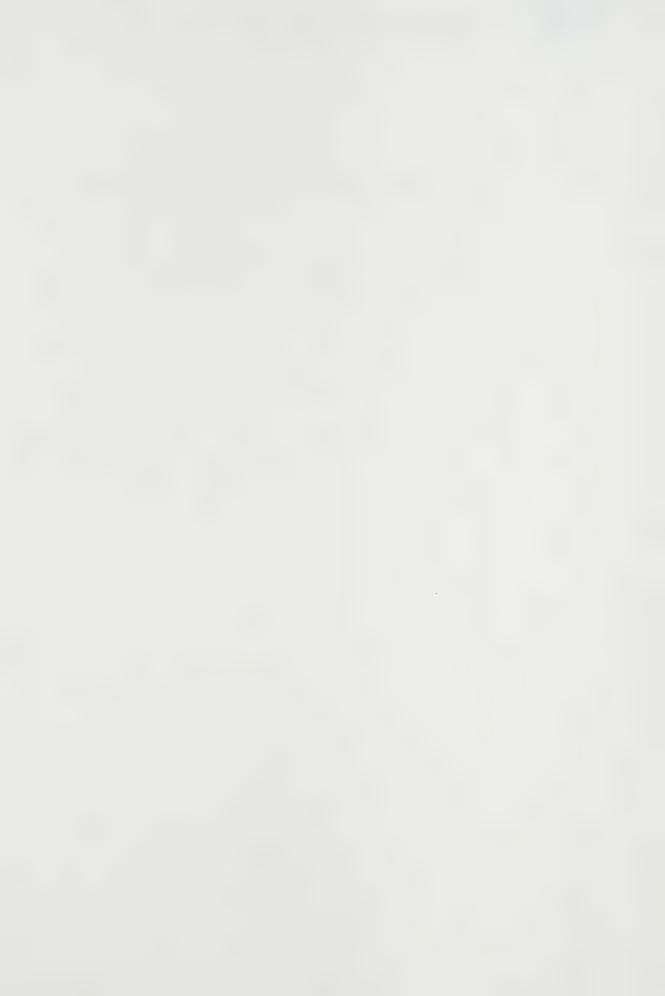
- Α. Yes.
- Q. When did that occur to you?
- A. Again, it is a little difficult, sometime during the day, on reflection. It could have been quite late in the day, really, I am not sure of the time.
- 0. Whenever it was that that did occur to you, what did you do?
 - My first response was to get the Α.





TORONTO, ONTARIO

digoxin level or see if it had been taken and of course it had not been taken, and then I checked whether there was any serum left from either of the two samples of electrolytes that I had taken, and there was none. It had been disposed of. So I then knew I had taken a CBC sample and my recollection is not exactly clear, but I think I phoned Dr. Ellis at this point in time, I am not sure, now, to know whether it was possible to do a digoxin level on what is called a sequestrene tube. It is a small tube that contains an anticoagulant that is suitable for the measurement of red cells and platelets.





5oct83 D DMra Q. I am going to take you a little bit by the hand here, Dr. Costigan. Do I understand from what you say that a sample that you draw for complete blood count is put into a different kind of tube or container?

A. That is right.

Q. Than the sample that you draw for digoxin level or electrolyte count?

A. Yes, because it is a serum measurement, whereas the blood count, you don't want the blood clotted. The difference is that serum is what is left after the clotting process takes place.

 Ω . Let me be sure then that I follow you today. You wanted to know if the digoxin level had, in fact, been done?

A. Yes.

 Ω . And you found first that the sample for that level had not been drawn. You told us earlier that, in the normal course, it would have been drawn in a routine way at eight or nine o'clock in the morning?

A. Yes. The assays are only done once a day or maybe even every second day, I'm not quite sure.



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Ω. So, at eight or nine o'clock in the morning, with this child, nobody was worrying about taking a digoxin sample; they were trying to resuscitate him?

> Α. Yes.

Ω. And, therefore, that sample had not been drawn in the normal way.

You then tried to find out if any of the samples you had drawn for the electrolyte analysis --

> Α. Yes.

Q. -- remained?

Α. Yes.

0: And you found it had not?

Α. Yes.

Ο. And then it occurred to you to draw another sample for the complete blood count showing a different kind of vessel?

> Α. Yes.

0. And you say you think you called Dr. Ellis to see if that sample in that vessel could be used for digoxin assay?

> Α. Yes.

Q. And what did he tell you?

Α. He didn't know. I mean --



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he wasn't sure; so, I guess what he knew he could do was he could probably clot the specimen and extract the serum. You know, I am not sure what, technically, he could do, but he probably had some little scheme in his mind that he could do to extract some serum.

O. All right. So, we have Dr. Costigan in search of a sample.

Did you, in fact, find some part of the sample that you had drawn for the complete blood count?

- A. Yes.
- Q. Where did you find that?
- A. In the Hematology

Department.

 Ω . And you found it in a tube that, I take it, you could identify?

A. Oh, yes. Well, first of all, with one of the technicians, we went and got the requisition out and then went through -- they were relatively filed in an order - I forget how long they keep them for - but we could just go back and correlate the number with the requisition, and I then took the sample down.

 Ω . And some portion of that





D4	

sample remained?

A. Yes.

Q. And what did you do with it?

A. I took it down to Dr.

Ellis' laboratory, which was down the hall.

 Ω_{ullet} Do you recall what time of day that was?

A. My impression was that it was in the evening time, seven o'clock, or approximately around that time.

Q. I think I can help you, Dr. Costigan.

Mr. Commissioner, Exhibit 55 at the preliminary inquiry.

Exhibit 55 at the preliminary inquiry, Dr. Costigan, is now what is a copy of a clinical chemistry requisition form, and is that your signature in the lower right-hand corner?

A. Yes.

 Ω_{\bullet} And the patient is identified at the top right-hand corner as "PASCAI, Kevin".

THE COMMISSIONER: Is this 32B?

MR. LAMEK: Our exhibit number?

THE COMMISSIONER: Oh, yes, I'm



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sorry. I see it. I beg your pardon. Yes. All right.

MR. LAMEK: Q. "PASCAI", slightly misspelled, and then "ICU". In the lower left-hand side, "digoxin level", that is what you wanted done with this sample?

A. Yes. That is what I requested, the digoxin level.

Q. Now, if you would turn the document upside down, Dr. Costigan, there is a stamped date and time, just in the centre but above, half-way up, "81 March 12, 19:44", 7:44 in the evening?

A. Yes.

Ω. And that was the requisition that you completed at that time asking that a digoxin level be measured in this sample which you had retrieved from the Hematology Department?

A. Yes.

Q. The remnants of the sample, or what remained of the sample that you had drawn shortly after Kevin Pacsai's admission to the ICU at about 6:00, 6:15, 6:30 that morning?

A. Yes.

Q. Thank you.



that assay?

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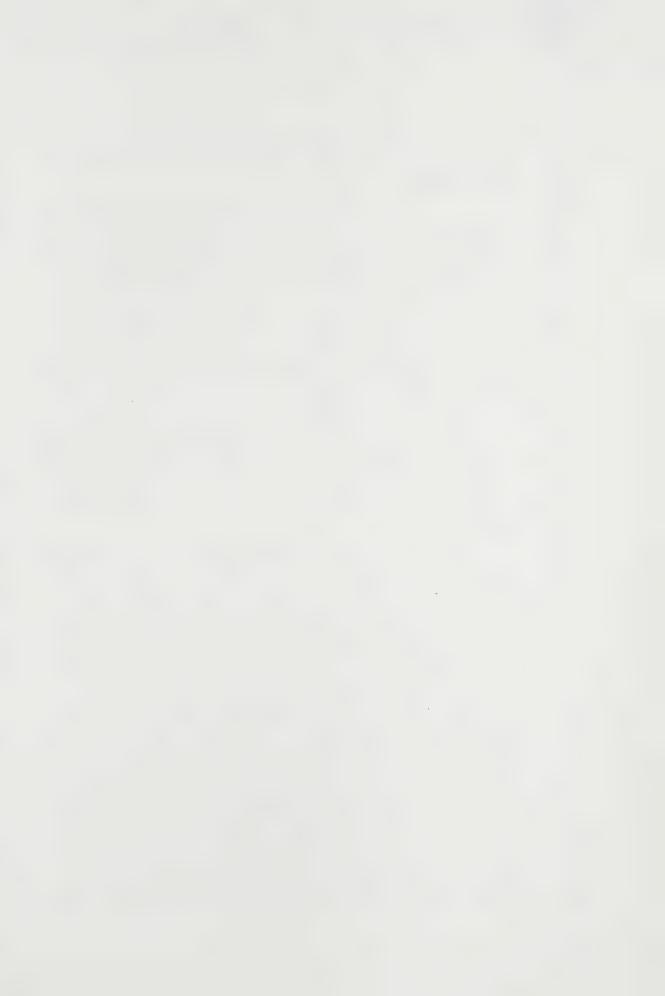
When did you hear the results of

A. I am not one hundred per cent sure on this point. My impression was that it was probably the next day, but I cannot be sure.

Q. Well, if it is of any assistance to you at all, Dr. Costigan, I can tell you - and this, Mr. Commissioner, is Exhibit 45 from the preliminary inquiry.

You can't vouch for the accuracy of this, of course, doctor, and I don't ask you to. I merely give you the date in the hope that it may assist you.

Mr. Commissioner, the page number in the top right-hand corner is 23, and the date at the top of the page on the right-hand side is 12 March 1981. About half-way down the right-hand side, 13 March 1981, Items 4 and 5 appear to be "PASCAI", again spelled that way, "Kevin, to ICU". There is a sample number which, in fact, coincides with that on the requisition, Mr. Commissioner. I ask you to accept that from me. A notation again on the left-hand side that it was multiplied by 2, suggesting dilution, "NSO for further DIO, not enough to dilute further" and a level greater than 10.



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That appears to have been done on March 13th, the day following the evening upon which you delivered the sample to Dr. Ellis' lab.

Is that of any assistance to you at all in remembering when you heard from Dr. Ellis about that level?

- A. I still can't be sure, no.
- Q. You think it was the

next day, though?

- A. Yes.
- Q. Which would be consistent

with his having done the assay that day?

A. I am not sure what time he did the assay. You know, it could have been done in the afternoon; I am not sure really.

 $$\Omega $. $$ You told us that Ellis had not known,had not known whether he could do a proper digoxin assay --

A. Yes.

 Ω . -- on a sample in a CBC

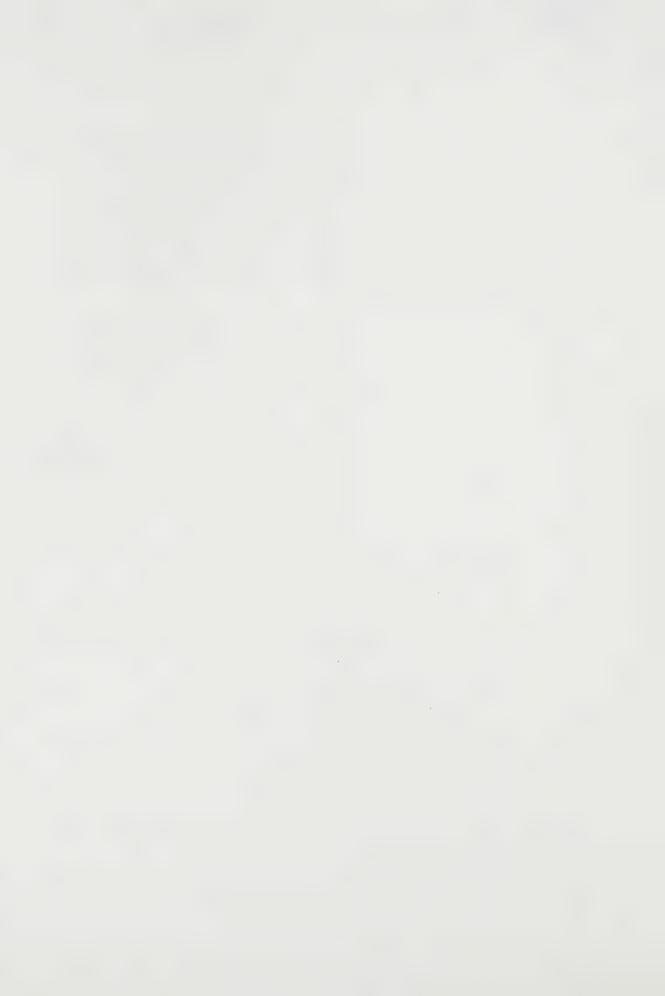
tube?

A. Yes.

 Ω . And we mean no disrespect

to the media, let me be clear!

THE COMMISSIONER: What does "CBC"



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S	t	a	nd	f	or	?
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MR. LAMEK: Complete blood count.

Q. And, therefore, I take it you could not have absolute confidence that the level that is apparently thrown up by the analysis of greater than 10 was what you called earlier a "true bill"?

A. Yes.

Q. Was that a matter that you discussed with Dr. Ellis?

A. Yes.

Q. After he had done his

assay?

A. Yes.

 Ω_{ullet} And did you arrive at any expedient for resolving the question as to whether that was a reliable assay result?

A. Well, I offered to get him another sample in the same tube to see whether - from a patient who was on digoxin. That is my recollection, and he would be able to see whether it was roughly equivalent to the true bill, whatever, you know.

Q. You offered to get a sample from another patient also on digoxin, in what,

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the same tube, or a similar tube, the CBC tube?

A. Yes.

Q. To see if the tube had any effect upon that sample?

A. Yes.

 Ω . And did you do that?

A. Yes. I can't remember

the manner in which I did it. I really don't remember. I didn't actually take any blood from the patient. I think I went to the ward, and I can't remember, found a patient who was on digoxin and had a CBC done that morning and, you know, that was the mechanism for it.

 Ω_{\star} So, you used some of the CBC sample?

A. Yes.

Q. Just as you had with

Pacsai?

A. Yes.

Q. And was that sample

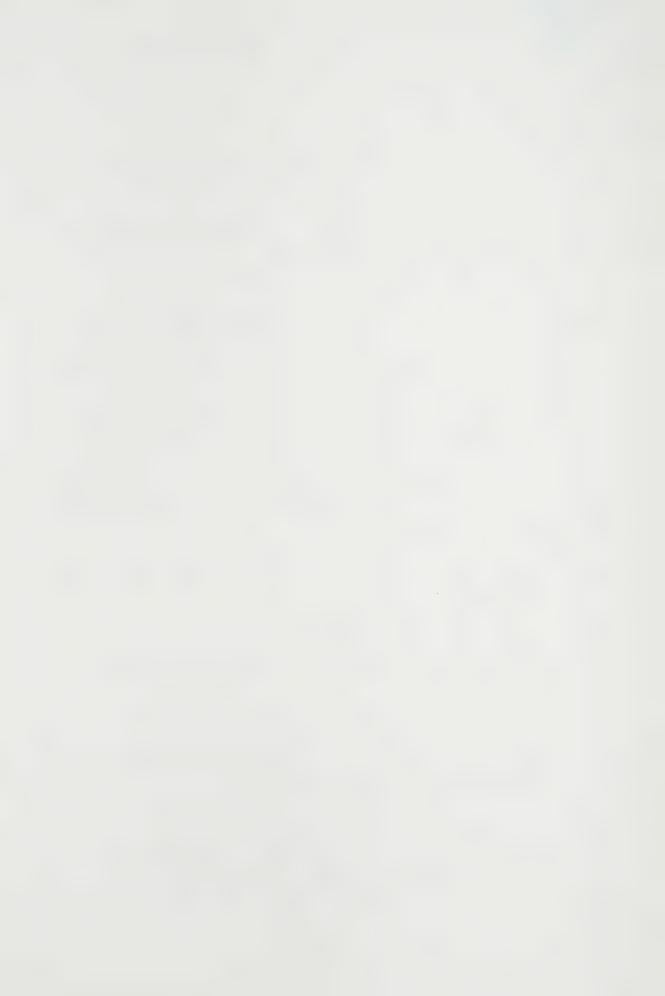
delivered to Dr. Ellis for assay?

A. Yes.

Q. Did he subsequently

report the results of that assay to you?

A. Yes.



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Ω . What did he t	tell	you
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A. Well, his report was that he -- it seemed that he could measure digoxin in a CBC tube, that that sort of corroborated the fact. What he said, as far as I recollect, was that he had measured a second sample and found that the measure was relatively -- was within normal limits, or whatever; so, therefore, he was happy he could measure in the CBC tube from that.

 Ω_{\bullet} He appeared to conclude that the tube didn't have the effect of elevating the level?

A. Yes.

 Ω . Do you recall when you got that information from Dr. Ellis?

A. Yes. My impression was that was Tuesday, because he also told me, at that same time on the same telephone conversation, that he had also received a sample from the same child, Pacsai, from post mortem sample, and that was also elevated.

Q. Was that the first time that you had been aware that a post mortem sample had been drawn from Pacsai for digoxin assay?

A. Yes.





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 Ω . Did you ask him who had ordered that sample drawn?

A. No. He told me it had come from the Pathology Department. I don't know whether he mentioned a name or not.

 Ω . You think that was on the Tuesday. Did he tell you the level that had been recorded in that post mortem sample?

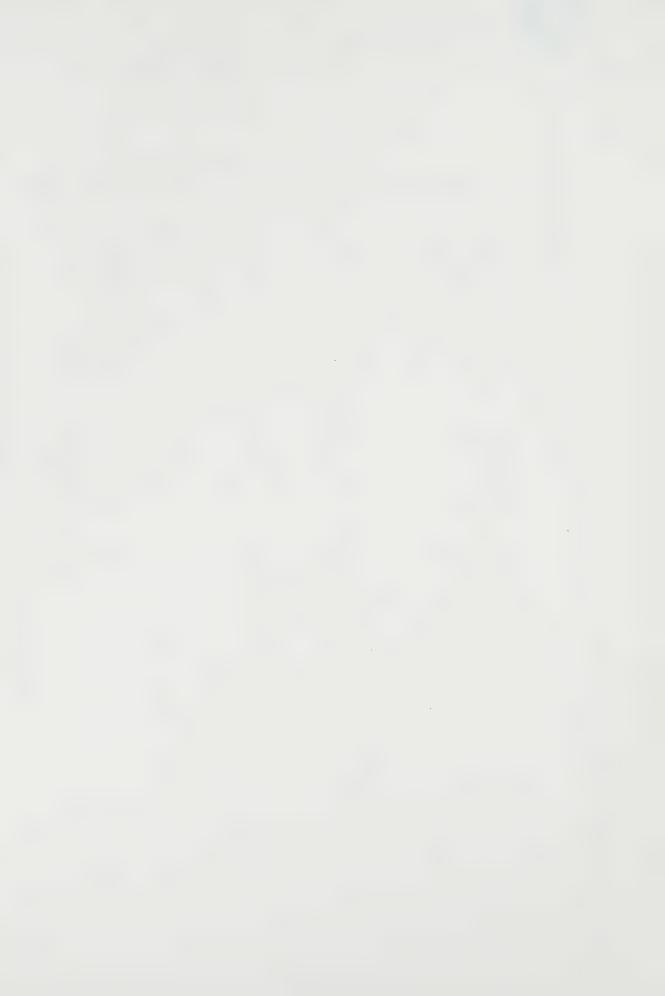
A. I don't know whether he gave me a figure, but I know he told me it was very high, or he told me a figure that I interpreted as being very high.

Q. Well, you now know that the level was 26. So, I take it that, as of Tuesday, you had two pieces of information; one, that the level of greater than 10 recorded in the sample which you had produced appeared to be a reliable one because the tube didn't appear to distort the results?

A. Yes.

Q. And, two, that there was an elevated level, which you may have known to be 26 in the post mortem sample, which had also been submitted from Pacsai?

A. Yes.



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			Ċ	2.	And	upon	rece	iving
those	two	items	of	infor	mation	, what	was	your
reacti	on,	what	was	your	respon	se?		

A. Well, then I felt we had a digoxin level, whereas, up to that, I was concerned that we were dealing with artefacts.

Q. All right.

A. So, I then went and reported it, found out, I guess, who was the physician responsible for the patients that month on the Cardiology floor, and went and spoke to Dr. Fowler in his office.

Q. You reported the information that you had received to Dr. Fowler?

A. Yes.

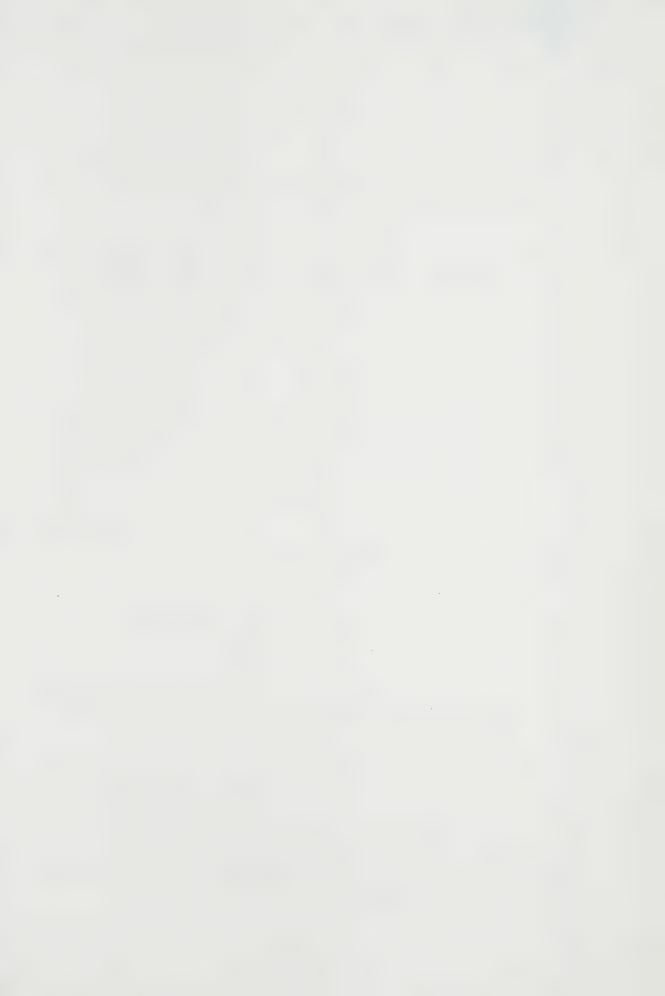
Q. On the Tuesday?

A. Yes.

Q. Were you concerned by the high readings of which you were now aware and upon which you thought you could rely?

A. Yes, I was concerned. Yes

Q. Did you have any opinion as to whether those readings might indicate that digoxin toxicity was indeed an element in the death of Kevin Pacsai?



	Α.	Yes, I	had.	I gue	SS
I had a little pi	cture now	in my	mind of	the	
possible dynamics	of what l	nappene	d, not	being	an
expert, but my im	npression v	was tha	t we ma	y have	9
aggravated the si	tuation is	E it wa	s digox	in to	xicity
and we may have a	nggravated	the si	tuation	by re	educing
the potassium.					

Q. You were obviously concerned about the role that you may unwittingly have played in the act?

A. Yes.

Q. Do I understand you to be saying that, upon receiving the information as to the levels - first, did you regard those levels as corroborating each other?

A. The ante mortem and the post mortem?

Q. Yes.

A. Yes.

Q. And with that information, was it your judgment that the cause, the probable cause of the child's death, had been digoxin intoxication?

A. It certainly, yes, was a strong possibility at that time. Yes.

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			Ω .			Had	you	ever	come	into
contact	with	а	level	of	25,	26	nand	ograms	befo	ore?

A. No, no.

Q. Did you have some awareness of what the generally accepted toxic range for digoxin was?

A. Yes. Of course, I had never seen anything that high.

Q. This was very substantially above the normally accepted toxic range?

A. Yes.

Q. Were you concerned, therefore, that this might represent a lethal level?

A. I wasn't aware of what the lethal level of digoxin was. My only knowledge was it was a lot higher than previous levels I had seen associated with toxicity.

Q. When you spoke to Dr. Fowler on the Tuesday, did you discuss with him whether the levels which had been reported to you might represent lethal concentrations of digoxin?

A. I didn't know about lethal concentrations; I didn't know what a lethal concentration was.

Q. Did you ask him?



concerned?

Yes.

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		A	· I	don't	remember	asking
him	that	particular	question.			

Q. What was Dr. Fowler's response to the information about the Pacsai levels?

A. It is difficult to remember words that he said, or whatever.

 Ω . Did he appear to be

A. Yes, he was concerned.

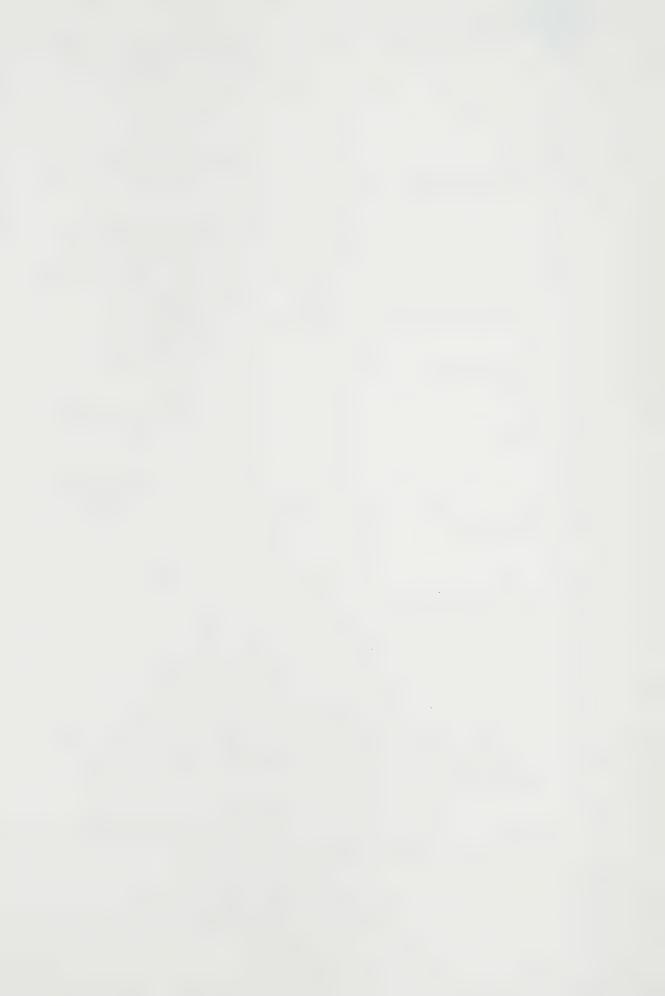
Q. Did he -- did the two of you discuss how the levels could possibly have occurred?

A. The discussion was not very extensive. We just talked briefly about the medication -- he mentioned about medication errors. He gave me the impression that there was a problem or that he had some prior knowledge of a problem and that he was going to see about it straight away, and he actually left the office at that time with me to go to the ward.

Q. I recognize the difficulty of recalling what was said --

A. Yes.

Q. -- a distance of two





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yes.

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impression of awareness of a problem, you mean awareness of a problem generally about medication errors, or a problem about digoxin in particular?

A. My impression was it was probably medication errors.

and-a-half years. When you said he gave you the

Q. And I take it medication errors are not unknown in hospitals?

A. No, of course they are not.

Q. How long did your dis-

cussion with Dr. Fowler last, doctor, on the Tuesday?

A. Again, it is difficult to be precise, but it wasn't very long.

Q. And, at the end of that discussion, was it your understanding that Dr. Fowler was going to look into the matter in some way?

A. Well, yes. I thought that is what he was -- like, he left his office.

I intrrupted him in his office, and he got up and left to go.

Q. Did you expect that, at some point, you would hear back as to what he had been able to find out?

A. Yes. I presumed I would,



		Q.	Now,	we	know	from	pre-
vious ev	vidence	that, on	the foll	lowi	ng mc	rning	J ,
Wednesda	ay, Marc	h 18th, y	you gave	the	same	info	rmation
to Dr. (Carver,	the Chief	f of Pedi	atr	ics.		

A. Yes.

Q. And we have heard from Dr. Carver that, following grand rounds that morning, you said you wanted to speak to him.

A. Yes.

Q. Is that consistent with

your recollection?

A. Yes.

Q. I take it your purpose in wanting to speak to him was to raise this very matter?

A. Yes.

 Ω_{\bullet} What prompted you to go to Dr. Carver with the information on the Wednesday morning?

A. I am not quite sure.

Maybe it was reflecting over the night; maybe I had heard nothing further. I am not quite sure what precipitated me to go and speak to him. My recollection was that it was quite late on Tuesday when I spoke to Dr. Fowler and it was nine o'clock, ten

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o'clock on the Wednesday when I spoke to Dr. Carver.

Q. You had heard nothing from Dr. Fowler in the meantime?

A. No. I heard nothing in the Hospital or from the associates who were on the night before, or anything.

 \mathbb{Q}_{\bullet} Where did your discussion with Dr. Carver take place? In his office?

A. Yes, in his office.

Q. And you reported to him the Pacsai levels. I take it you gave him some background information of the child and your involvement?

A. Yes, I probably gave him the whole story.

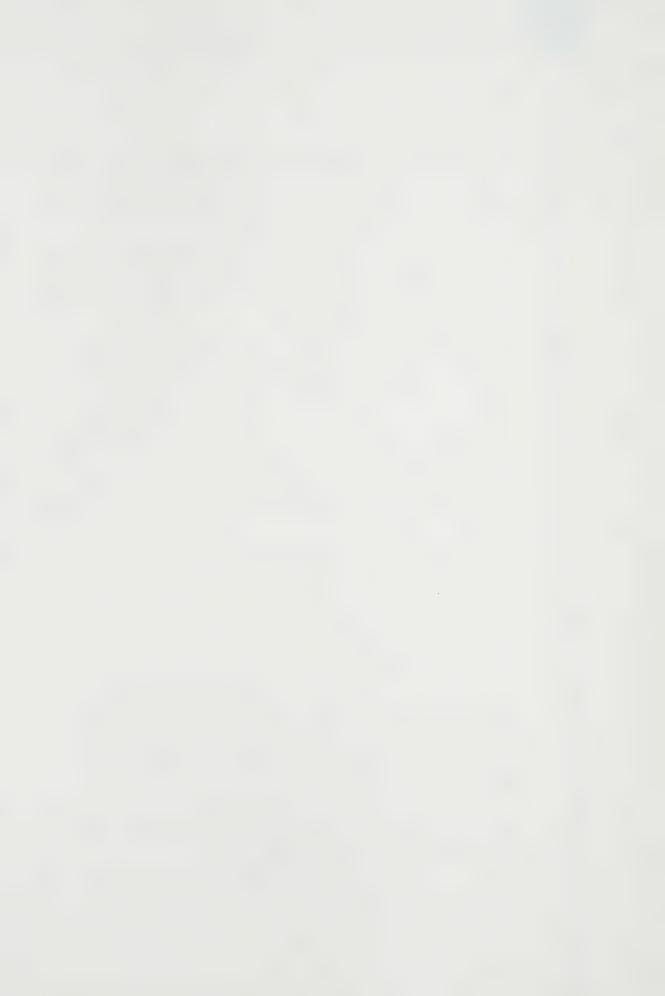
Q. And what was his response to the information?

A. Well, his response was that you know -- he put in a call for Dr. Fowler and a call for Dr. Rowe, and I forget who else he was going to contact.

Q. Were you present when he spoke to either of those gentlemen?

A. No, I don't think so. No.

I cannot remember.



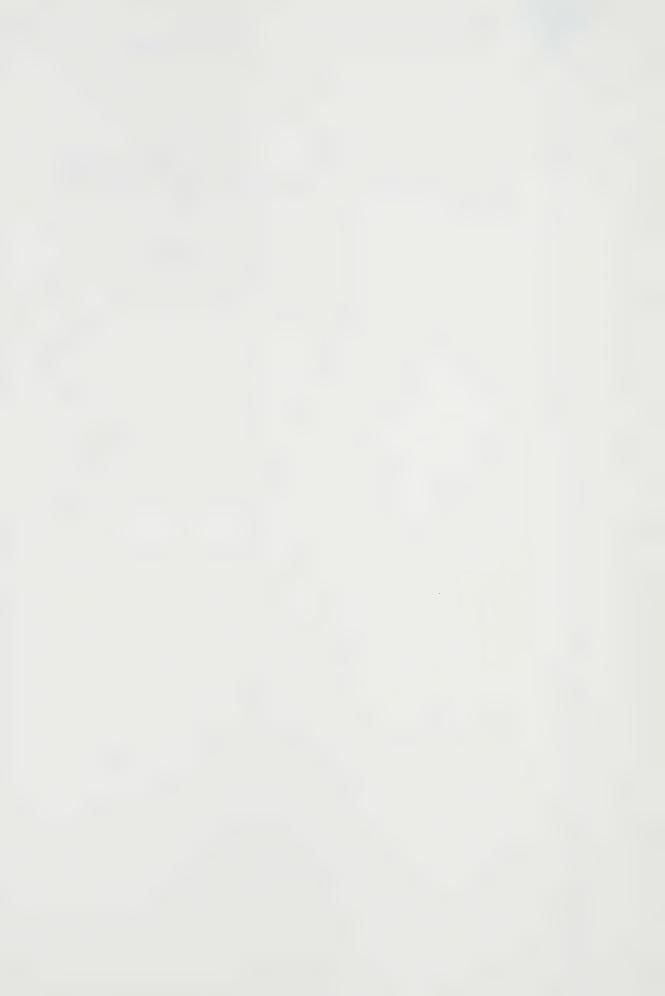
be concerned by

to him?

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Q.	Did D	or. Ca	arver	app	pear	to
the inform	ation	that	you	had	take	en

- A. Absolutely, yes.
- $\mbox{Q.} \qquad \mbox{And where was the matter} \\ \mbox{left between you and Dr. Carver?}$





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Well, Dr. Carver was taking over the situation, you know, and the way it was was that he was waiting to hear from Dr. Rowe. I'm not quite sure whether he had actually spoken to Dr. Fowler on the telephone or not and arranged a meeting later. I think this was what had happened before I left.

0. Okay. In the course of your discussion with Dr. Carver did the two of you talk about any possible explanation for the Pacsai digoxin levels that you had reported, how could they have occurred?

Α. I can't remember that discussion if it did take place.

Okay. Now, did you at some 0. point in time, Doctor, and let's focus first on the period up to March 18 when you reported the Pacsai information to Dr. Carver, prior to that time had you become aware that a baby who had died on the cardiology ward back in January, a baby called Janice Estrella had had a digoxin level of 72 nanograms per millilitre recorded in a postmortem sample taken from her? Were you aware of that?

> A. No.

Q. All right. Did you subsequently



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become aware of that?

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Α. Yes.

Without going into the circum-0. stances just now, when did you learn of the Estrella death and level?

A. Saturday morning. I can't remember the date but it would have been the next Saturday after that Wednesday.

0. Okay. We will come to that That would be Saturday the 21st. in a moment.

> A. Okay.

Yes. At any time after the morning of March 18th, 1981, Dr. Costigan, at any time after that morning, did Dr. Rowe have any discussion with you that you can recall about the Pacsai case?

I can't remember, you know, Α. any formal discussion.

> Any discussion at all? 0.

A. No, I can't remember.

Q. What about Dr. Fowler, did he have any discussion with you that you can now recall?

> A. No.

Q. Or any other staff cardiologist?

Α. No.

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Ω . All right. Do you recall				
having had any discussion with Dr. Bain about the				
Pacsai case and, in particular, I would ask you to				
think about the summer of 1982 when, as we know,				
Dr. Bain was reviewing all of these cases including				
that one. Do you recall any discussion with Dr. Bain				
at that time?				

Α. No.

0. Were you surprised when Kevin Pacsai arrested and died on the morning of March 12th? I was surprised when he arrested, yes.

Q. Did you regard his death as unexpected?

> Α. Yes.

Q. In your professional judgment, Dr. Costigan, following that child's admission to the ICU after the immediate settling down period, what was his clinical status? Was it precarious, unstable, stable, how would you describe it for us?

A. Well, my impression at the time was that he was stable over a period of, what, two. hours or whatever, an hour and a half.

And that was your impression Q. notwithstanding that you had had him transferred to



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the ICU in the first place, that he had had these periods of arrhythmias and the apneic spells?

A. Yes, he had been stable and we gave him some atropine and he seemed to be more stable with the faster heart rate and, you know, over that brief period of time he was even stable.

Q. All right. Now, at page 94 of the Pacsai chart, Dr. Costigan, there is the preliminary autopsy report. I recognize that this was probably not available - well, I should ask you. The autopsy on the child was performed March 13th. I'm afraid I don't know exactly when the preliminary report was prepared. Had you seen the preliminary report at the time you spoke to Dr. Carver on March 18th?

A. No.

 $\Omega.$ Okay. Do you recall ever having seen the autopsy report on this child?

A. Just subsequent in the police investigation or whenever I was reviewing the chart and I saw it, yes.

Q. But after the events of March 18, 19, 20, 21?

A. No.

Q. After that is when you saw that?



A. Yes, I'm sorry, yes	
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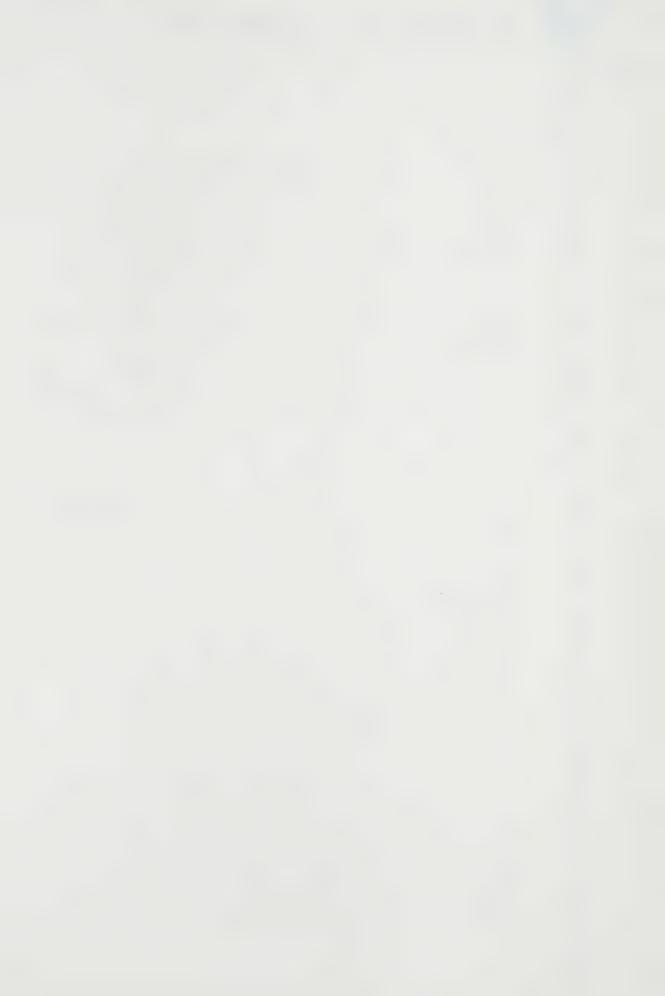
Which was signed by Dr. Cutz identifies as the immediate cause of death the last sentence under Short History Final Note, the immediate cause of death is digitalis toxicity, postmortem blood level detected was 26 nanograms, that should be, per millilitre. At the end of March, 1981, Dr. Costigan, was that a conclusion with which you would have agreed?

A. Yes.

Q. And in light of the digoxin level information, of which you have told us, in light of what you observed before and during the resuscitation effort on Kevin Pacsai and in light of what you know or knew about the clinical and anatomical condition of the child, is it still your view that digitalis intoxication was the probable cause of his death?

A. Yes.

O. Now, can we move forward, move on to an event later on in that week. We know that in the early hours of Saturday morning, March the 21st, a baby called Allana Miller died on Ward 4A. I don't believe, Doctor, that you had anything to do





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with the care and management of that child, am I

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right?

Α. Yes.

Ο. A Code 25 was called. Were you involved in the unsuccessful resuscitation attempt on that child?

> A. No.

All right. When did you learn Q. of her death?

Α. It was approximately maybe 7:30 on that Saturday morning the 21st.

> Were you on duty that day? Q.

A. No, no.

0. Were you at the Hospital when you found out about Allana Miller's death?

Yes. I had just dropped in my wife. She was working that day, she's a nurse in the Hospital.

> Q. Your wife is a nurse at the

A. Yes.

0. Working the day shift that day?

Α. Yes.

Q. So, you had driven her to the

Hospital?

Hospital?





work myself.

Α.	And	Ι	had	gone	up	to	do	some

 Ω . All right. You had arrived then, what, about 7:00 in the morning?

A. Yes. She had to start at 7:30, so, it was about 7:00, 7:15.

Q. All right. And was it shortly after your arrival that you learned of the death of Allana Miller?

A. Yes, I phoned Dr. Canny.

Q. Who is he, please?

A. Sorry, Dr. Canny is the associate chief resident who was on call that night.

Q. Yes. The preceding night.

A. Yes, the preceding night.

 Ω_{\bullet} And was it from him that you learned of the death of Baby Miller?

A. Yes.

 Ω . What did he tell you, to the best of your recollection?

A. Again, I can't remember words or whatever, but he described, he said that he had had an arrest and he told me it was unsuccessful I guess and then he may have described some parts of the arrest, I cannot remember really, the actual

things he told me about the arrest.

- Q. If you were to look at the arrest note in that case, would it perhaps prodyour memory?
- A. I don't know really. I can if you like.
 - Ω . Well, it may not greatly matter.
 - A. Yes.
- Q. Was there anything about the information that you received that caused you any concern, even though you may not be able to identify it now? Were you concerned in any way on hearing of the story of the Allana Miller case?
- A. Yes, I was concerned. For what reason I'm not sure, but I was concerned.
- Q. About what were you concerned? I mean, what was the nature of your concern?
- A. The concern I guess, I actually asked him had he performed a digoxin level. I think that is the question I asked him, or whatever. He had said no and, so, at that point I went to the post mortem, to the autopsy or to the Pathology Department.
- Q. Okay. Well, let's just pause there. Something that Dr. Canny said and you cannot



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not recall what caused you to ask the question, did you order a digoxin level or did you take a digoxin sample?

A. Yes. That is my recollection that I did ask him that question.

Q. Was the nature of your concern, you must feel free to say very squarely no if this is wrong, was the nature of your concern that digoxin may in some way have been involved in the Miller death?

A. I don't know whether I actually took it that far or not but it was obviously on my mind, yes.

Q. And at that time you would still not have heard about the Estrella case?

A. No.

 Ω . All right. You were operating solely on the information that you had about Pacsai?

A. Yes.

Q. And Dr. Canny told you that, no, he had not ordered a digoxin level on the child.

A. Yes, that is my recollection.

Q. And I think I broke in just as you said you went down to the Pathology Department.

A. Yes.





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there?

Ω. For what purpose did you go

A. Well, to see if we could get a sample, a postmortem sample for digoxin.

 Ω . All right. And whom did you see?

A. A resident in pathology whom I later found out was Glenn Taylor.

Q. Glenn Taylor?

A. Glenn Taylor.

Q. And did you understand that it was Dr. Taylor who was to do the autopsy?

A. Yes, I think I probably asked him.

Q. On the child?

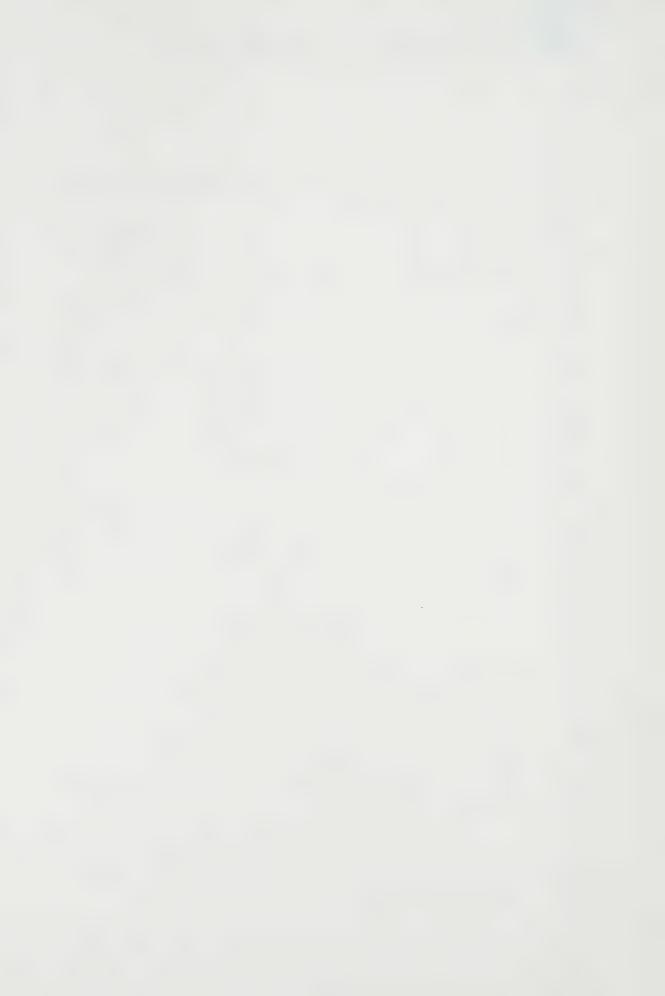
A. I mentioned the autopsy and he said yes, I was responsible or I'm doing it or something like that.

Q. Do you recall what time of day you went down to the Pathology Department, approximately?

A. Well, my recollection was that it was in the morning, 9 o'clock or 10 o'clock or something like that.

. Q. All right. I can tell you,

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Doctor, and ask you to accept it from me that the autopsy report on Allana Miller records that the autopsy was conducted some six hours after death and she died about 3:30 in the morning. So, if the autopsy began at 9:30, do you recall whether you spoke to Dr. Taylor before he had begun the autopsy?

- That point I cannot be sure of.
- All right. Did you ask 0.

Dr. Taylor to draw a sample of blood at autopsy for digoxin assay?

- Α. Yes.
- Q. All right. And did he agree to do that?
 - Α. Yes.
- All right. Did you have any Q. discussion with him as to the site from which the sample should be drawn?
- I cannot remember. I think I A. may have approached him about the possibility of taking a postmortem sample or whatever. I'm not sure how I approached the question of would he he do a digoxin level. All I remember is we did talk. about using the aqueous humur of the eye to measure potassium levels. So, there was obviously some discussion that went on about the site.



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Q.	But	you	can't	now	recall	the

A. No.

Q. Prior to having that discussion with Dr. Taylor about taking a sample for digoxin assay had you had any discussion with anybody about making that request?

A. No.

Q. Did you seek anyone's approval to request the postmortem level?

A. No.

Q. Or tell anyone that that is what you intended to do?

A. No.

O. All right. Did you subsequently learn that Dr. Cutz also instructed Dr. Taylor to obtain a blood sample at autopsy for a digoxin level?

A. Yes. Well, subsequently, I think it was a long time later.

Q. All right. When did you expect to get the results of the digoxin assay?

A. I would have expected for it to be put on the run on Monday.

Q. All right.

A. Whenever the next run was.





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		Q.	They	are	not	normally	done	over
eekend	I	take	it?					

A. No.

 Ω . And this was a Saturday morning?

A. Yes.

 Ω . Now, you have told us earlier that it was on Saturday that you learned about the Estrella case?

A. Yes.

Q. How and in what circumstances and from whom did you learn about Estrella?

A. I was relating I guess in a brief form my experience on the previous Thursday when I was asking Dr. Taylor to do the digoxin level and he said, oh, we had one, a digoxin level of something like very high or 70 or something back in January and we couldn't make anything of it or something like that.

Q. Yes.

A. And that was how I discovered about the Estrella baby:

THE COMMISSIONER: Just a moment please. ---Discussion off the record.

MR. LAMEK: Q. You have told us that Dr. Taylor mentioned to you the Estrella matter



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and the high number, 70s or something but they couldn't make anything of it.

A. Yes.

Q. Did you at that time ask him for further information about the Estrella case?

A. My impression was that he was giving me as much as he knew about the Estrella case.

 Ω_{ullet} Did you at any time on that Saturday seek from anyone else or any other source information about the Estrella case?

A. Well, I was concerned about the possibility that there was two people with high digoxin levels to my mind, so, I sought out Professor Carver and explained the situation to him.

Q. All right. Was that on Saturday morning or Saturday afternoon?

A. My recollection was Saturday afternoon.

Q. Now, we know from other evidence. Dr. Costigan, that on the afternoon of Saturday, March 21st, Dr. Carver was at a meeting at the coroner's office, a meeting that had been called to discussed the Pacsai and Estrella cases. Were you aware that such a meeting had been called?

A. No.



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his office?

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	Q.	,	All	righ	nt.	Ιf	you	saw	him	in
the afternoon	-	early	or	late	afte	erno	on,	do y	you	
remember?										

- Α. I can't remember exactly.
- Q. All right. You saw him in
- Α. Yes.
- Was that for the expressed 0. purpose of telling him that you had now learned of another child with a high digoxin level?
 - A. Yes.
 - Who had died in January? Q.
 - Α. Yes.
- I take it that Dr. Carver Q. already knew about the Estrella child?
- Α. Yes. Well, my purpose was to get the digoxin assay done on Saturday, that day.
 - Q. On Miller?
 - A. Yes.
- Q. All right. You didn't want to wait until Monday in the ordinary course?
 - Α. Yes.
- Did Dr. Carver agree that it was a matter of some importance and urgency to



the assay.

get the Miller level as quickly as possible?

A. Yes.

Q. And did he take steps to expedite that?

A. Yes, he phoned the staff from clinical chemistry, Dr. Soldin I think it was.

Q. Yes.

A. Who agreed to come in and do

Q. All right. We know that the Miller digoxin level was reported back at about 8 o'clock that evening?

A. Yes.

Q. Did you remain at the Hosiptal from the time of your discussion with Dr. Carver until the time the level was reported on Miller?

A. Yes, I think so, yes.

 Ω_{\bullet} Did you have any further discussion with Carver prior to the reporting of the Miller level other than as you have summarized for us?

A. No, I don't think so.

Q. Okay. Did Dr. Carver tell you any more about the Estrella case than you already knew?



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		Α.	Well,	he ju	st t	cold me	that	he
had	been at	the meeti	ng with	n the	Corc	oner, o	r what	ever
abou	it the pat	tient in	Januar	y, but	he	didn't	elabo	rate
on t	he circur	nstances	of the	death	in	January	7 •	

Q. All right. Do you recall whether Dr. Carver said anything to you about the reliability or the unreliability of the levels recorded in the Estrella samples at that time?

A. I can't remember him saying anything like that.

MR. LAMEK: Mr. Commissioner, I am just about to come to the reporting of the Miller levels and the brue ha ha that followed that. Is this a sensible time to take a break?

THE COMMISSIONER: All right, we will take 20 minutes.

---Short recess.

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---Upon resuming.

THE COMMISSIONER: Yes, Mr. Lamek.

MR. LAMEK: Thank you, sir.

Q. Dr. Costigan, we have reached the point in the events of Saturday when Dr. Carver had expedited the performance of the radioimmunoassay on the sample from Miller.

A. Yes.

Ω. And you told me, I think, just before we broke, that you remained at the Hospital until those results came back?

A. Yes.

 Ω_{\bullet} We know from other evidence that was about 8 o'clock. Is that consistent with your recollection?

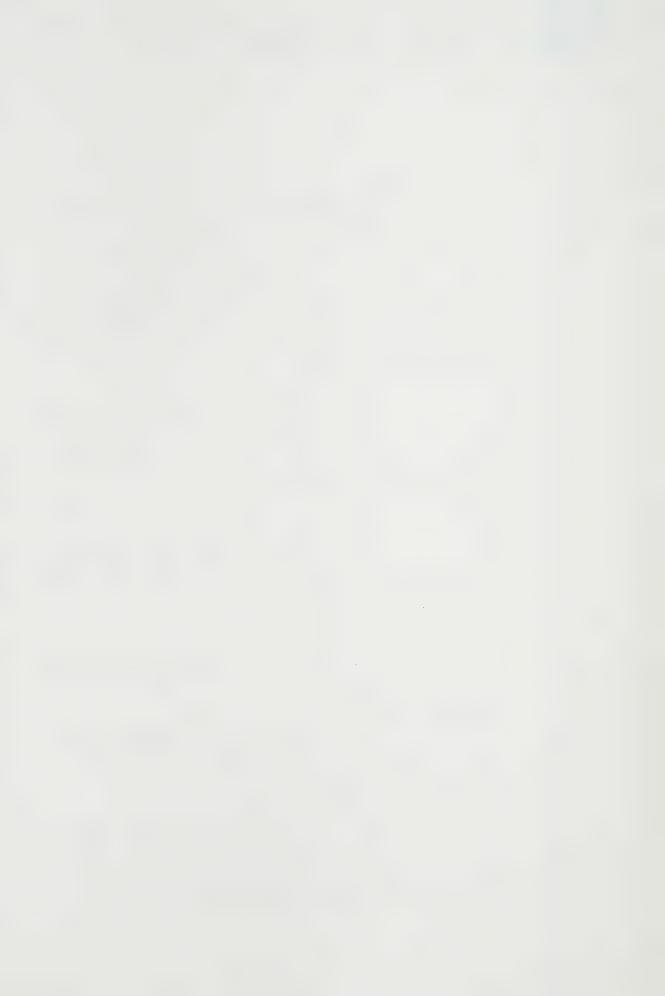
A. Yes.

 Ω . Did you stay with Dr. Carver throughout that period?

A. No, I do not remember what I did in that period but I don't remember being with Dr. Carver all the time.

 Ω . We will come to one thing later that you did in that period, but otherwise you don't recall being with Dr. Carver?

A. No.



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	Ç	ĵ.	Do	you	recall	to	whom	n th	ne
Miller	digoxin	level	was	repo	orted?	Was	it	to	you:

- A. No, I think it was to Dr. Carver
- Ω. How did you learn of the level?
- A. My recollection is that

 Dr. Carver called another meeting and there was the

 nursing supervisor and myself and Dr. Fowler, I think,

 and maybe other people there at that meeting in his
- Q. Was it at that time that Dr. Carver relayed to the meeting the information that the Miller level had been reported at 78 nanograms per millilitre?
- A. Yes, or he may have even told me on the phone when he was gathering the meeting.
- Q. As at the time you went to the meeting on Saturday evening in Dr. Carver's office, or shortly after your arrival there, you now knew of three children with elevated digoxin levels that had been reported: one, you knew of Estrella, the child who died in January?
 - A. Yes.
- Q. Two, you knew of Pacsai who died on March 12th and, now, three, you knew of Miller?



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A. Yes.

Q. And in your own mind, first, without getting into the discussion, what was your reaction to this third child in whom this very high digoxin level had been reported, added to the two of which you were previously aware?

A. I had many sort of responses.

I did not really know and I was wondering about many possibilities of medication errors or whatever.

That was really my thinking at the time.

 Ω . Had the possibility of intentional administration of toxic dose to those three children occurred to you?

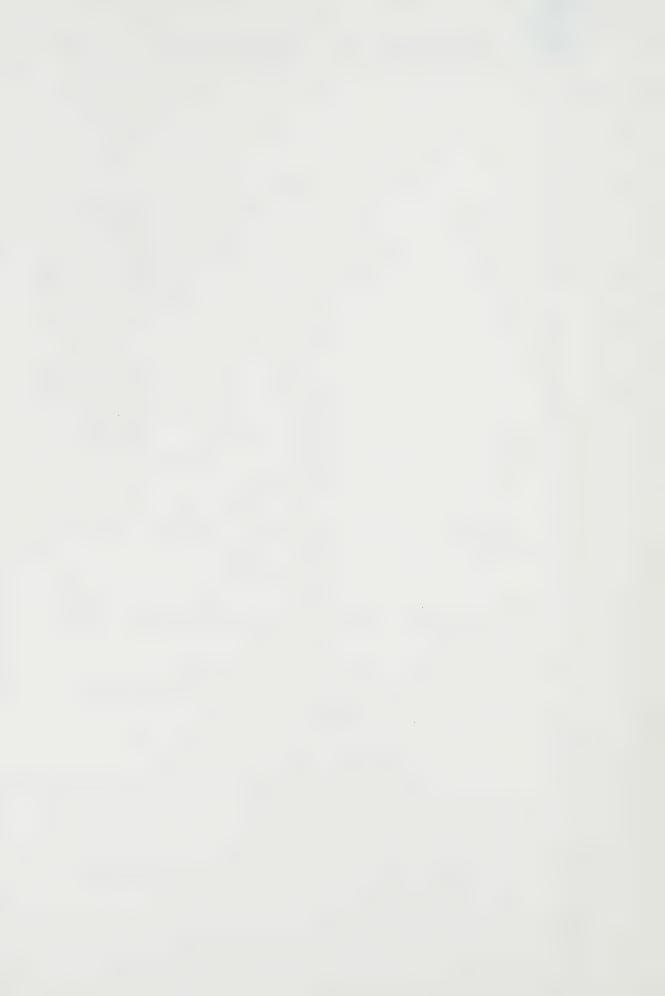
A. I am not quite sure in the time sequence when it did occur to me, but it did occur, yes.

Q. In the course of Saturday evening, did it occur to you?

A. Yes.

Q. In considering that possibility, which was obviously a very distasteful one, did you seek around in your own mind for any other possible innocent, that is, not intentional, explanation for the three deaths?

A. Of course, yes.



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	Č	2.	Were	you	able	to :	find	any	,
plausib	le innoc	cent exp	lanat	cion	that	sa	tisf	ied	you
as a po	ssible e	explanat	cion f	Eor t	those	thre	ee de	eath	ıs?

A. I only had first hand knowledge really of one case. The others were just sort of - I was not directly involved with.

Q. But the other two had very much higher levels reported than the one in which you yourself had been involved in?

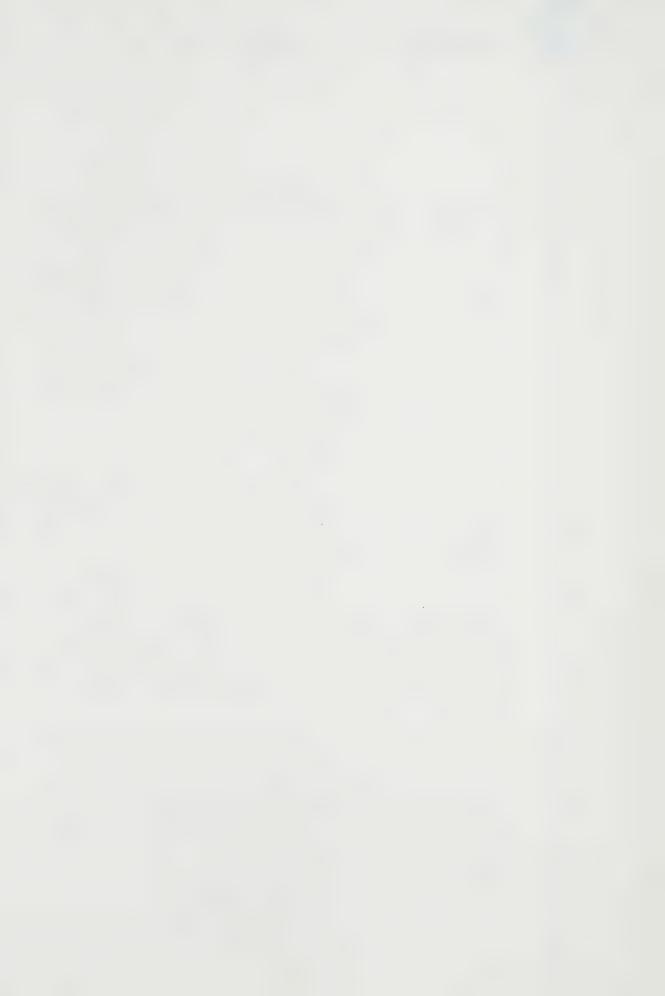
A. Yes.

Q. Did you have any reason at that time to doubt the validity and reliability of those readings, in Estrella and Miller?

A. I was aware that the other two readings were postmortem readings and mine was an antemortem reading but I was not aware at the time of the difficulties of comparing one with the other.

Q. Is it not fair to say that in the case of Pacsai at least you told me that you regarded the ante mortem of greater than 10 and the post mortem of 26 as being corroborative of each other?

- A. Yes, compatible.
- Q. Can I go back to my question



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then. During the course of Saturday evening, as you turned this troubling situation over in your mind, Dr. Costigan, did any innocent and plausible explanation occur to you as to the cause of those children's deaths?

A. Lots of possibilities came, like medication errors or that sort of thing, but there were the two principal candidates. One was medication error on a repetitive basis, and the other was foul play.

 Ω . We know that one of the things that came out of the meeting with Dr. Carver and Dr. Fowler and the nursing supervisor that night was a decision to treat digoxin as a controlled drug?

A. Yes.

Q. Was there discussion at the meeting of the possibility that these three deaths might have been caused by intentional administration of toxic doses?

A. Yes.

Q. Was it that consideration that led, as I would take it, to the decision to lock up the digoxin?

A. Yes.

Q. If that is what was happening,



let us at least try to guard against a recurrence. Was that the thinking?

A. Exactly.

Q. We will come to what you and Dr. Mounstephen did to implement that decision in a moment.

Do you recall anything else that was discussed at the meeting on Saturday evening at which you and Dr. Fowler and Dr. Carver and a nursing supervisor were present?

A. Yes. We discussed the possibility that one team of nurses might be common to the three episodes.

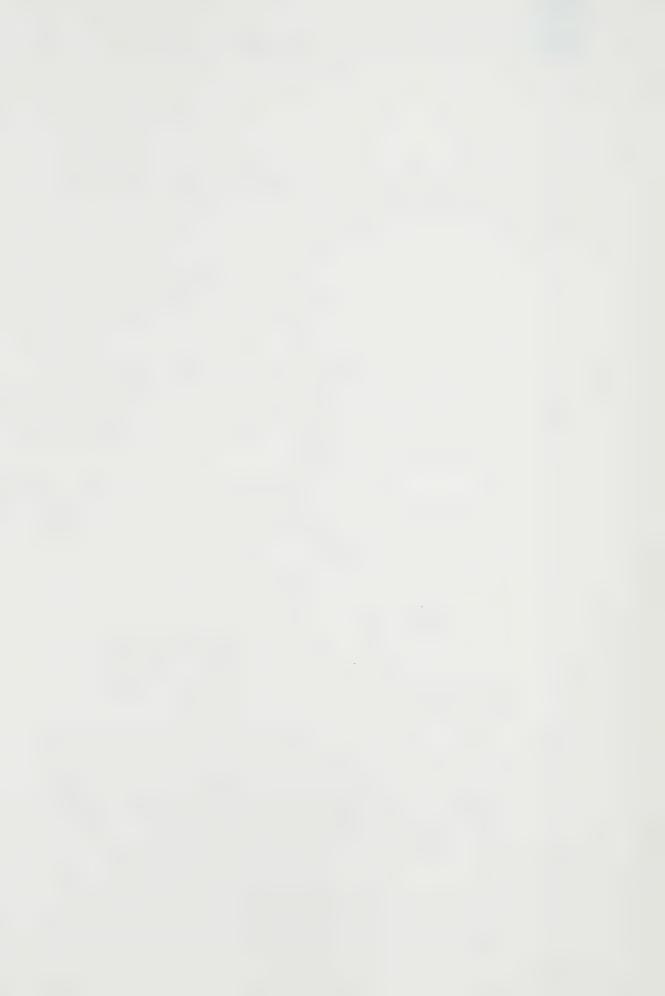
Q. Do you recall who raised that as a possibility?

A. I am not 100 per cent sure.

It may have been myself, actually, I am not 100 per cent sure, though.

Q. Had you, prior to that meeting, made any observation that a particular nursing team the appeared to be associated with or present on/occasion of a number of deaths on the cardiology wards?

A. Yes. The observation was made known to me on one occasion when a group of that particular team of nurses were very upset one



night after a cardiac arrest and there were tears and things like that. I'm not quite sure at what time or when this was, but my impression was that they had had two or three arrests during their particular stint at that time and they were upset.

Q. But on the Saturday evening,
March 21, there was discussion, as I understand you,
of the possibility that one nursing team may have
been present for each of these three deaths that
were causing so much concern.

A. We did not have our information about January but I think we had information about Pacsai and about Miller.

Q. It appeared there that the same nursing team had been on duty for each of those deaths.

A. That is my recollection of what went on in our thought processes.

Q. Did that discussion occur in the context of the possibility of intentional over-dose or medication error, or both?

Q. My recollection is that it was both.

Q. Do you recall anything else that was discussed at that Saturday evening meeting?



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			Α.	No,	I	cannot	remember	anything
else	at	the	moment.					

- Ω . I understand then that Dr. Mounstephen, he had not been at the meeting, had he?
- A. No, I think Dr. Mounstephen was looking after other things in the house at the time.
- Q. He was minding the store while you were at the meeting?
 - A. Yes.
- Q. He was summoned, was he, to assist you in implementing the decision to have digoxin treated as a controlled drug?
 - A. Yes.
- Q. And you and he went to every ward in the Hospital with those new instructions about digoxin?
 - A. Yes.
- Q. We have heard from Dr. Carver earlier that you and Dr. Mounstephen prepared an inventory of the digoxin you found on the various floors of the Hospital.
 - A. Yes.
 - Q. I am showing to you what I



think to be a copy of that inventory, Dr. Costigan.

Do you recognize it as such?

A. Yes.

Q. I know you had the original in your care and I am content that you keep it there. May that be the next exhibit, Mr. Commissioner?

THE COMMISSIONER: Exhibit 205.

--- EXHIBIT NO. 205: Inventory of Digoxin at The Hospital for Sick Children.

THE COMMISSIONER: There is no need to do it, but you have a curriculum vitae, do you, of Dr. Costigan?

MR. LAMEK: I am having copies made.

I can file it on re-examination.

THE COMMISSIONER: Yes, all right.

MR. LAMEK: Q. Before we get to the actual inventory, Doctor, just give me an idea, and we need not take very long with this, did you and Dr. Mounstephen travel together through the Hospital or did you divide the place up between you? How, physically, did you do this thing?

A. My recollection was that we started on the 9th floor and then we came to the 8th floor and then we would go to one ward and we would meet back at the centre elevator bank. If I was

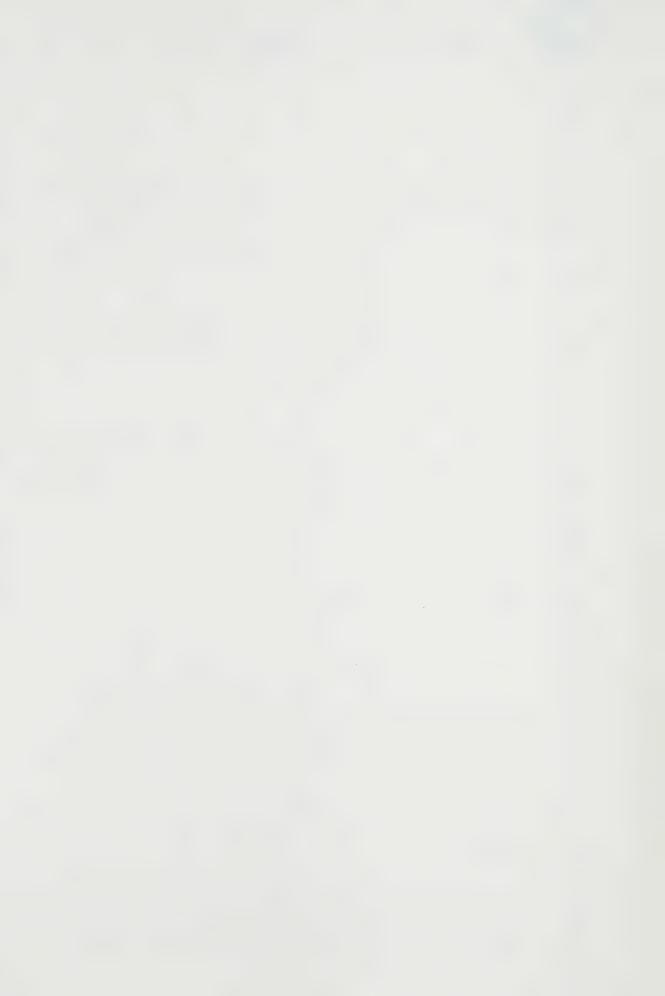


back first I would go up to his ward and if he was back first he would come up to mine, or whatever.

Q. And your purpose, as I understand it, was threefold.

First, to inform the nurse in charge of each ward of the new rules relating to the storage and administration of digoxin?

- A. Yes.
- Q. Second, to check whether there was digoxin, parenteral digoxin preparation on the crash carts on the various floors?
 - A. Yes.
- Q. And, third, to compile an inventory of the digoxin that was in the various wards?
 - A. That is correct, yes.
- Q. Now, in the inventory that you prepared, it is perfectly clear that in many cases you found no digoxin at all either on the floor or on the cart?
- A. Yes, on 1, 2, 3, 4, 5, 6, 7 wards.
- Q. Yes, and I take it that the inventory discloses that on Ward 4B, and 4A, although the parenteral digoxin preparations were found in



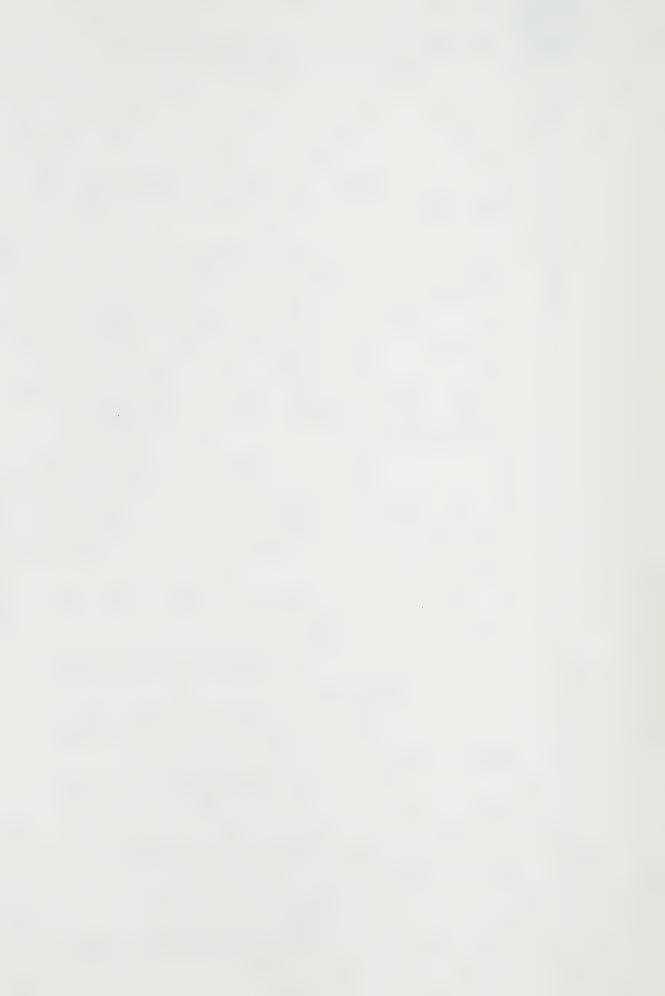
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2	the medications were no discuir was found on the great
3	the medications room no digoxin was found on the crash carts on that floor?
4	A. Correct.
5	Q. Or on those wards, I am sorry,
6	but on 4C there was some on the crash cart?
7	A. Yes.
8	Q. But 4A and B, the cardiology
9	wards, you found no digoxin on the crash carts?
10	A. That is correct.
	Q. Who carried the news to Wards
11	4A and 4B?
12	A. I did, as far as I recollect.
13	Q. Was Dr. Mounstephen with you,
14	do you recall, when you went to 4A?
15	A. It is difficult to remember.
16	I am not 100 per cent sure.
17	Q. To whom did you convey the
18	information about the new digoxin rules on Ward 4A?
	A. As I did in the other wards,
19	it was to the team leader on duty at the time.
20	Q. Do you know who that was?
21	Do you know her name?
22	A. I did not know her name at the
23	time. I think I know now. I think it was Phyllis Trayner, I'm not sure of it.
24	Traymor, I'm not sure or it.





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3	Q. How did you know she was the
4	team leader?
	A. They wear the keys of the locked
5	cupboard around their neck, usually on blue band.
6	Q. A little like a chain of office?
7	A. That is right.
8	Ω . Where was Nurse Trayner, or the
9	team leader, I am sorry, where was she when you
10	arrived on the floor?
10	A. She was in the room immediately
11	to the left of the nursing station as we approached
12	the nursing station from the centre bank of elevators.
13	I think it is 418.
14	Q. 418, that is the room with
15	the large number of infant beds in it?
	A. Yes, there is a comparative
16	one on the other side.
17	Q. Was any other nurse in the
18	room with her?
19	A. Yes, Nurse Nelles was in the
20	room.
21	Q. Did Nurse Nelles have a
22	patient in that room?
	A. Yes.
23	Q. Do you know who the patient
24	was?





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			Α.	My	impression	was	s that	it	was
Baby	Cook,	a	patient	who	subsequent	Ly o	died.		

0. We will come back to him in a little while, then.

Did either Nurse Nelles or the team leader make any comment when you announced the new rules about digoxin?

- I don't remember any comment.
- Did either of them show any 0. response of any kind to the announcement - surprise, relief, dismay, anything at all?
- I don't remember any expression of emotion or anything.
- Did you stay to see the digoxin Q. locked up on that floor?
- Α. Yes. My recollection is that I went with the team leader and we took the medications from their usual place in the medicine room and she put them into the locked cabinet. I cannot remember seeing the door actually closed but I was present when she had the keys and the door was opened so my understanding was that she had done that.
- Did you visit Wards 4A and 4B 0. in their natural order as you worked your way down from that floor or did you give them any priority?



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A. I think we anticipated that i	1
would not very long and we did not want to really	
create any sort of alarm. It was a general rule so	
we just started at the top and worked our way down.	

Ω. Having worked your day through the whole Hosiptal in that way, I take it you then reported to Dr. Carver that his instructions had been relayed and carried out?

A. Yes.

Q. Did you then go home,

Dr. Costigan?

A. Yes.

Q. At approximately what time?

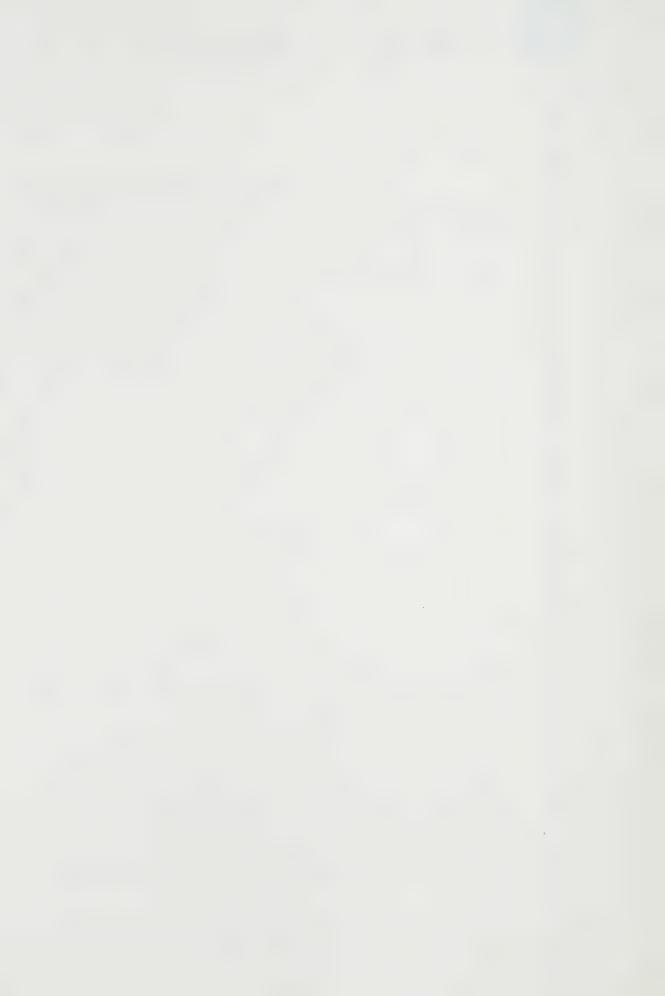
A. I think it about 12:30 or

l o'clock.

 Ω . Having finally got you home in the early hours of the 22nd, let me take you back to the early evening of the 21st.

In the period between your meeting with Dr. Carver when he expedited the Miller level assay and your subsequent meeting with him and Fowler when the implications of that level were discussed, did you have any occasion to be on the cardiology wards?

A. Yes, I was on the cardiology



Ω. Do yo

wards at one point in time.

O. Do you recall for what purpose?

A. No, I cannot really recall why I was on the ward at that time.

Q. Do you recall anything that happened while you were on the cardiology ward?

About what time would that be?

A. Some time about 6 o'clock. I'm not 100 per cent sure but you could check it really because Baby Cook was having a blue spell when I arrived, just as I - they were treating him.

Q. I think the Cook chart does indeed reveal that he was having a blue spell about 6 o'clock.

Were you involved in any way in that episode?

A. No, I was just watching how it was done, really. The cardiology Fellow,
Dr. Jedeikin, and one of the cardiology residents on the floor at the time, I'm not sure who it was, really, were administering some propranolol, I think, and the child seemed to recover while I was there.

Q. Did you participate in any way in the treatment of Baby Cook at that time?

A. No, I was just looking on.



			Q.	(Or	did	you	have	any	involv	ement
art	any	other	time	with	Ва	by (Cook	?			

looked a little bit interstitial or something later that night when I had been speaking to the team leader.

I was just passing by and I looked over to see how he was doing and the baby looked fine but his butterfly or intravenous which was in one of the veins here, just on the front of the baby's forehead, looked a little swollen. I brought this to Nurse Nelles' attention and she assured me that it was working fine.

Q. Other than that, did you have any contact at all with Baby Cook during the time that he was in the Hospital?

A. No.

Q. And you were not involved in the resuscitation attempts on Baby Cook later that night?

A. No.

Q. You by then were at home?

A. Yes.

Q. Were you in the Hospital on Sunday the 22nd, Doctor?

A. I cannot be sure of that. My impression is probably not. I am not 100 per cent sure.





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Q. Do you recall when you learned that Baby Cook had died in the early morning of March 22nd?

A. I certainly was aware of it on Monday morning. I think that is what makes me think I was not there on Sunday.

Q. Did you also learn that blood samples had been drawn from Baby Cook during the resuscitation and after his death for digoxin assay?

A. Yes, at what time I learned that, I'm not 100 per cent sure.

Q. Again, I take it, you subsequently learned of the digoxin levels recorded in those samples?

A. Yes.

Q. Were you aware at the time you obtained the information as to the digoxin levels that digoxin had not been prescribed for Justin Cook?

A. That may have been mentioned at the same time, but I cannot remember if it was mentioned at the same time that the high levels were told to me.

Q. When those levels in Baby Cook's samples came to your attention did they serve to heighten your concerns about the events on the



cardiology ward, events involving Estrella, Pacsai and Miller?

A. Yes.

Q. Did they serve to direct your thinking to one or the other of the two possibilities that you have told us about as explanation, that is to say, accidental overdose or intentional administration?

A. I think it is fair to say that I was thinking more of intentional at that point in time.

Q. Just one other area that I would like to deal with if I may, Doctor, and it goes back to that one of your duties which involved your being in charge of the arrest team when you were on duty or on call.

In the period from July 1980 until mid-March 1981, you were involved, as I understand it, in a number of resuscitation efforts on the cardiology ward.

Let me read you the list of which I am aware and ask if you can recall any others.

You were, I think, involved in the resuscitation effort of Kelly Anne Monteith on August 19 and that arrest occurred at about 3:40 in



the morning; that of Tony Velasquez on August 24 at 3:20 in the morning; Matthew Lutes on November 17 at about 12:30 in the morning; Jesse Belanger on December 28 at 7:30 in the evening; Jordan Hines on March 8 at 4 o'clock - 4:10 in the morning and, as we have already said, Michelle Manojlovish on March 12 at 3:00 a.m. and subsequently, of course, that day, Pacsai, and that was end of it, as I understand it.

Do you recall any other arrests on the cardiology wards in the nine month period with which we are concerned in which you were involved?

A. No, I don't recall any other and some of --

Q. I take it, fairly, you do not even recall all of those in an individual way?

A. No. The only one that rings a bell as being different from the others now is Jordan Hines, and when I reviewed my notes for the police investigation or whatever of those cases there seemed to be an explanation that I had for each case except for maybe one, Belanger was one case I was concerned about.

Q. Looking back over your involvement in those arrests, as you later did in the course of the police investigation, did you remark upon the



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fact that of the six Code 25 that were called prior to Pacsai, up to and including Manojlovich, of those six, five had occurred in the early hours of the morning? Was that an observation that you made in looking back over the number of them?

- It is difficult to know at what point in time I made the observation of them happening at night.
- 0. But at some point in time you did make that observation?
 - A. Yes.
- 0. And when you made it, did that seem to have any significance at all in your mind? Was it a fact to be remarked upon?
- Α. It is not unusual, it seems in my experience, even outside of this Hospital, that arrest situations happen during the nighttime.
- 0. You have already told us that at some point in time it had occurred to you that the same nursing team had been present for one or more of these?
 - Α. Yes.
- Q. Did it occur to you as well that in all of the arrest resuscitation efforts that you had been involved in on the cardiology ward



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none of them were successful?

A. Well I think you have to take that in context of all of the arrests that happened in the Hospital at that time.

Q. That is fair.

A. The arrests on the cardiology ward would be expected to have the least success because of the nature of their conditions. They are often postoperative surgical patients or whatever, and as I said previously there was an explanation, to my expertise, for certainly most, apart from Jordan Hines and, on review, maybe Belanger.

Q. I recognize the force of what you say, Dr. Costigan, that a child with a damaged, diseased heart is going to be more difficult to deal with in a cardiac arrest case than a child with a well heart.

A. Yes.

Q. I can understand that.

Therefore, it did not cause you any concern when looking back over the number that you had been involved in, that your batting average was not very good?

A. It had caused me concern and I had reviewed my own techniques, my drug administration,





I had gone through all the little things, but at least I knew I had done what I thought to be appropriate in each of these situations.

Q. When you become involved in a Code 25 situation, Dr. Costigan, I take it obviously not before you get into the resuscitation, time is too precious, but at some stage you obtain some information about the child's course, about the events leading up to the arrest, that sort of thing?

A. Yes. That is probably one of the principal functions of the resident being present is to give you a summary, or from the nurse, as the arrest is proceeding, as to what the child's previous condition is and then later you review the events in the chart, or whatever.

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Q. Looking back over the half dozen cardiology ward arrests that you have been involved in, did you make any observation that in many of the cases the onset of critical symptoms leading to the arrest had been apparently a sudden one?

- A. I hadn't made that observation.
- Q. Or that those critical symptoms seemed to progress rapidly and over a short span of time from their onset to the arrest, had you made that observation?
- A. No, I hadn't made that observation.
- Q. Now, you have mentioned particularly the Hines case, and that I take it is a resuscitation effort that did stick in your mind?
 - A. Yes.
 - Q. For some reason?
 - A. Yes.
- Q. What was it that made the Hines case stay in your mind?
- A. It is probably a combination of factors.
- Q. Would it help you to have the chart, Doctor?





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A. Maybe, yes.

MR. LAMEK: That is Exhibit 103, sir.

Q. Are you looking at any particular page, Doctor?

A. I am sorry, I'm looking at page 69 and 70 I think, and 71.

Q. Thank you.

That is your arrest note, is it?

A. Yes. The initial thing that was unusual I guess was the appearance of the arrythmia when I arrived at the arrest scene. It appeared like the child was in ventricular fibrillation which is unusual to see as the initial presentation of an arrest in this young population of patients.

Q. You say that is unusual, is that based upon your experience of paediatric patients generally, or upon your experience of paediatric/cardiology patients?

A. It is based upon my experience of paediatric patients generally and, you know, it is very difficult to separate what you learn from cardiology experience and what you learn from paediatric experience.

- Q. Well, as you may know, Doctor --
- A. And from knowledge, you know



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0. Are you now aware that, of the children who died on the Cardiology Ward in the nine-month period that we are interested in, two of them; that is to say, Hines and Pacsai, had anatomically normal hearts?

Α. Yes, I am aware of that.

0. And, therefore, in that

respect, they were not damaged heart children?

Α. That is right, yes.

Q. And I suppose an

experience based on even general pediatric background would be of assistance for these two, would it not?

Α. I am not quite sure if I follow what you are saying.

Well, they didn't have Q. . anatomical problems in the heart.

> Α. That is right, yes.

0. You found ventricular

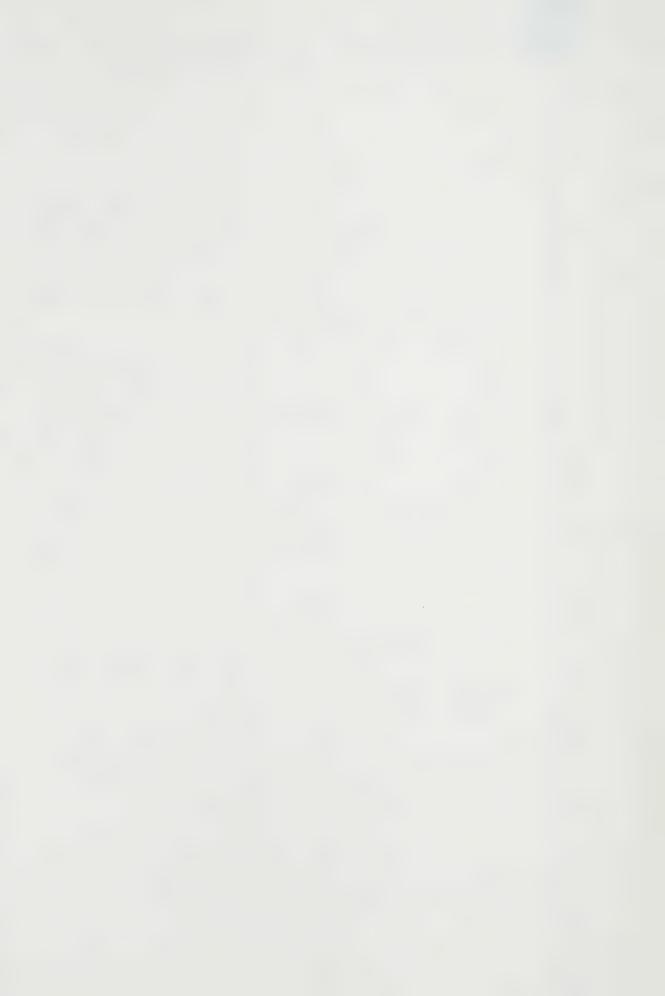
fibrillation as an arrhythmia unusual?

Α. Yes.

And remarked upon it

because it occurred in the Hines case?

Α. Yes.



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Q. As, indeed, you subsequently remarked upon it in the Pacsai case?

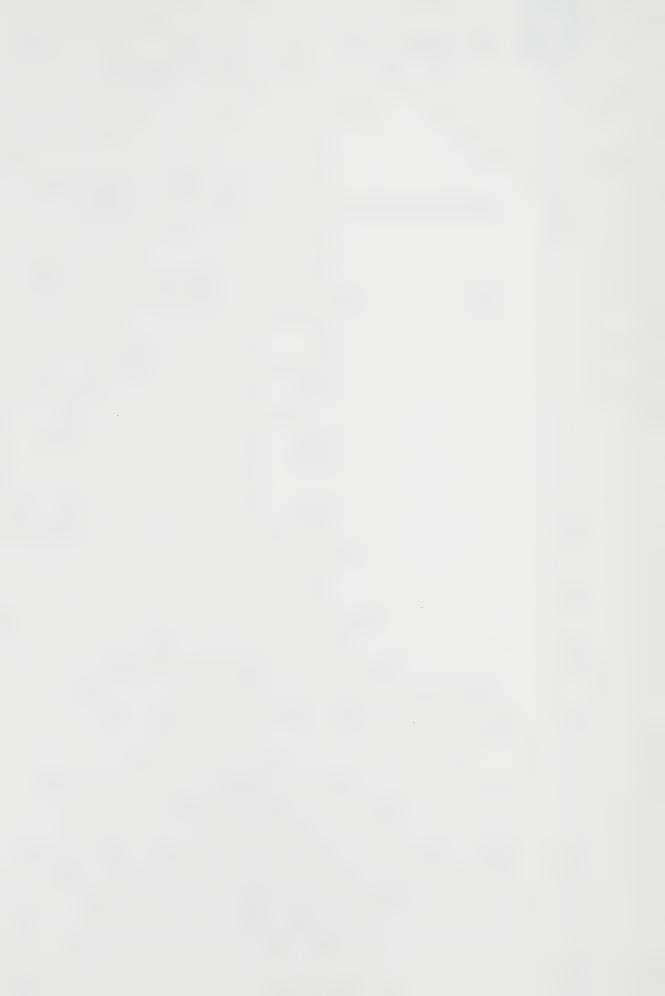
A. Yes.

Q. Was there anything else about the Hines situation that struck you as unusual?

A. Well, the child exhibited an extreme degree of ventricular irritability. What I mean by that is that, even though the child wasn't fibrillating all the time, the child had premature ventricular beats, which are warning signs of ventricular fibrillation, and evidence of ventricular tachycardia, and, you know, and in spite of lidocaine and various medications used to combat this type of problem that occurred here; the ventricular arrhythmias recurred.

Q. Was there any other particular feature of the Hines case that caused it to stick in your mind as out of the ordinary or unusual?

A. Well, we had -- it was a very long arrest and we had been quite successful in keeping the child well oxygenated and profused, and we had a blood gas -- we had one period of time where the child took over his own pumping action; we managed to get the blood gas, and it was very



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good for that sort of situation. And that sticks out as to what I found.

Q. You mean there was a point in this resuscitation where you thought you had brought the child back?

A. Well, we had held on very well and we were doing well at one point.

 Ω . And, unhappily, it didn't work out that way?

A. No.

Q. Doctor, do you see, other than ventricular fibrillation, do you see any other points of comparison or parallel between the Hines case and the Pacsai case, or did you remark upon any at the time?

A. Well, I mean, at the time, I only knew of Hines.

Q. I mean and Pacsai.





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	Α.	I remember thinking, after
I discovere	ed about	Pacsai's digoxin, I remember
thinking ol	n, could	Baby Hines have been a similar
episode, a	similar	cause, similar to each other.

- Q. Doctor, at page 40 of the chart, and it is a rather faint number on my copy I have to tell you, it is the Death Certificate in any event that is what I am looking for.
 - A. Yes.
- Q. That was completed, is that Dr. Kobayashi?
 - A. Yes.
- $\ensuremath{\mathtt{Q}}$. Was he involved in the resuscitation?
- A. I can't remember him, but, you know, I am sure you can check it some other way, but I can't remember.
- Q. Is the completion of the Death Certificate a task that is normally assigned to someone other than the leader of the Arrest Team?
- A. It is I am trying to think, normally it is done by the person who is responsible for the care of the patient on the longer term, and he I think approached the family, one of the doctors I believe had been speaking to the parents



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before, I guess one of the resident doctors on the ward approached the family for permission for a post mortem.

- Q. Do you recall any discussion with Dr. Kobayashi as to the cause of death that should be stated?
 - A. No.
- Q. Did you, following the cessation of the resuscitation efforts in the case of Jordan Hines, did you have any opinion as to the probable cause of that death?
- A. I didn't have any definite cause. I think there was a previous note about some arrythmias and sinus conduction abnormalities.
 - Q. Yes.
- A. Either made by clinical observation or one of the cardiology people, or based on some electrocardiogram or whatever, and I wondered whether this was a manifestation of this abnormality of conduction that somebody had proposed.
- Q. Following the death of Jordan Hines did you have any conversation with his parents?
 - A. Yes.
- Q. And how did that come about and for what purpose did you have a discussion?



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A. I learned that - I can't remember which resident, had asked for a post mortem and it had been refused. I felt that this was a case that we needed a post mortem on because there was a lot of questions that I didn't understand. So I approached the parents, who I had never met before and tried to explain what happened and my concerns about what happened, and how we could learn some more information, and I thought learn more information by looking at the conducting tissue in the heart. I was asking even for a more limited post mortem so we could just look at the heart situation. But eventually they agreed to a post mortem.

Q. You said a few moments ago that following the Pacsai death, and the digoxin disclosures within the next few days, it occurred to you to wonder whether Jordan Hines might have had some digoxin involvement, did I understand you to say that?

A. Yes.

- Q. Were you aware at that time that digoxin had not been prescribed for Jordan Hines?
 - A. I wasn't aware of that.
 - Q. Did you subsequently become



aware of that?

A. I did, much later. I didn't actually return to the chart and check out that possibility.

Q. Did you subsequently learn, by subsequent I mean now many months later, that the body of this child was exhumed and tissues were assayed to determine the presence of digoxin and there was an apparently positive finding of digoxin made in those tissues. Did you subsequently learn that?

A. Yes.

Q. At the time that you learned that, what effect, if any, did that have upon the question that you had raised following Pacsai's death as to the possible involvement of digoxin in the Hines death?

A. The problem with that was that contemporaneous with me learning about the level of digoxin from Baby Hines there was a lot of controversy about the validity of the measurements or whatever, but it did serve to reinforce my impression.

Q. I am not too concerned about the reliability of the level recorded, so much as



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the indication of the simple presence of digoxin?

A. Yes.

Q. Is that something that occurred to you as a reinforcing element in the concern that you have already told us about with respect to the Hines' death?

A. Let me say that I understand a lot of the problems that can happen with assays and procedures and things. Just like my skepticism of other investigations earlier I was still a little skeptical with that information.

Q. Doctor, I don't want to take you into the field of pharmocology, I know you don't profess any expertise there and I won't tax you with it.

May I simply ask you whether, subject to the resolution of those proper pharmological questions by properly qualified people, subject to that, do you still have a concern about the death of Jordan Hines and the possibility of digoxin involvement in that death?

A. Yes.

Q. Dr. Costigan, I have one final question and it goes back to the Estrella case. You learned of that ---



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THE COMMISSIONER: You say one final question, did the Doctor volunteer some problem about Belanger, can we have that.

MR. LAMEK: About Belanger, I'm sorry, I didn't catch that.

THE WITNESS: Just when I was reviewing the records of the note that I had made.

Q. Yes.

A. Last night ---

Q. Would it be helpful to have that chart, Doctor?

A. Yes.

Q. It is Exhibit 79, I am sorry.

A. The observation that I made obviously to the police that is recorded in my records, not here, but in my own records, is not reflected in the actual note written at the arrest, it was obviously made from a review of the chart at the time about whether this was expected or unexpected.

Q. This was the case as I recall it, Dr. Costigan, in which at the time of the death you did not see an immediate and ready explanation for it, is that it?

A. Yes.



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Q. There is nothing in particular that now jogs your memory about the Belanger case, other than that feeling that you didn't see a ready explanation for the death at the time that it occurred?

A. Yes, just going back over the cases that I could explain and I couldn't explain, it was one of the ones that I could not explain.

THE COMMISSIONER: Do I understand in all of this list Hines and Belanger were the only two that you felt could not be explained?

impression. There was one child who had an aspiration of stomach contents. There was another child who had a reaction after a medication was given. You know, there seemed to be a precipitating cause in the other cases.

THE COMMISSIONER: That is all you wanted to say though about Hines and Belanger is that you saw no further explanation, and I take it you still see no further explanation?

THE WITNESS: That is correct, yes.

MR. LAMEK: Q. Can I just follow that up a moment, Doctor. Indeed it is interesting that you named Belanger there. Did you become aware that



Costigan, dr.ex. (Lamek)

Belanger was another child for whom digoxin was not being prescribed?

- A. No, I wasn't aware of that.
- Q. Did you become aware that

 Belanger was a child whose body was exhumed and in

 whose tissues there was positive findings of digoxin?
 - A. No, I wasn't aware of that.
- Q. Was the question that you had about Belanger in any way similar to that which you had about Hines; that is questioning the possibility of digoxin intoxication in the death of that child?
- A. No. The question about

 Belanger just arose on reviewing the cases that I

 was involved in. Just seeing, was there anything that

 I could explain or couldn't that were unexpected to

 me, and Belanger and Hines were the only unexpected

 ones.
- Q. I won't take it any further than that with you, Doctor. Thank you.

Could we just go back quickly to the occasion of your learning about the Estrella case on the Saturday morning from Dr. Taylor in the Pathology Department. You had gone down to ask for a Millar sample to be drawn and analysed and he mentioned the Estrella case?



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A. Yes.

Q. I don't think I asked you this, Doctor, if I did forgive me; when he told you about the Estrella case did Dr. Taylor say or indicate there was any concern about the contamination of the sample which was analysed in the Estrella case?

A. What you say jogs my memory a little bit, but I am not sure whether I am mixing that up with our discussion about how to take a sample for digoxin post mortem.

Q. And what you might have heard later about it?

A. Yes.

Q. As I recall your evidence this morning you said he told you that being this high level, in the seventies, and they didn't know what to make of it?

A. Yes, that was my impression,

MR. LAMEK: Dr. Costigan, thank you very much indeed.

THE COMMISSIONER: Mr. Roland.

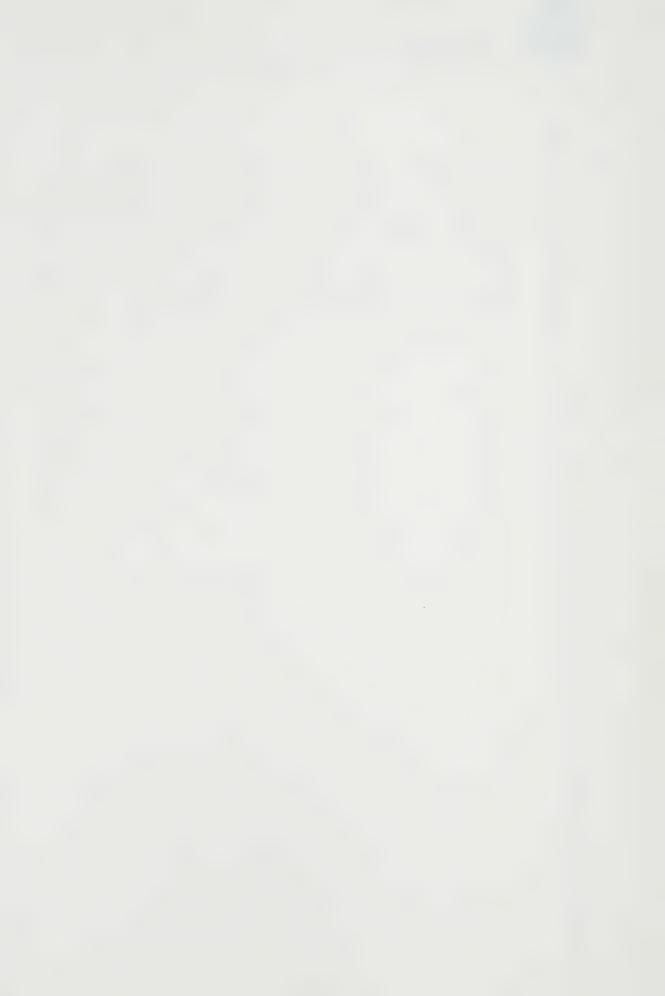
MR. LAMEK: Mr. Commissioner, may I just say one thing. It has occurred to me often in the course of these cross-examinations that it may





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be that not every witness knows whoever his counsel may be or who his client may be and it may be helpful to the witness if counsel could identify themselves before they begin to cross-examine. I know I would be awfully puzzled if I was sitting there.



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THE COMMISSIONER: Well, it happens quite often that they do identify themselves and it might be of assistance. I am not going to make it a rule though.

MR. LAMEK: I am not suggesting Mr. Roland needs to identify himself.

THE COMMISSIONER: I think he probably knows who Mr. Roland is, I hope he does.

MR. ROLAND: Yes, I have spoken to Dr. Costigan briefly this morning and I think Dr. Costigan knows that I act on behalf of the Hospital. EXAMINATION BY MR. ROLAND:

Q. Dr. Costigan, dealing with the Pacsai case for a moment. Did you know that that case had been reported to the Coroner?

A. Yes.

- Q. When did you first learn of that?
- A. That morning after the arrest.

I'm not sure what I was doing but I came back around,
I was around the Intensive Care Unit and Dr. Schaffer
took upon himself to write a note I think and he was
discussing with Dr. Fowler I think who was present
and they were phoning the Coroner. I think I actually
saw them dialing the Coroner at that time.

Q. Did you know the reason that they



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had called the Coroner?

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Well, my impression was that it was just because of the unusual nature of the arrest but subsequently I learned that there had been some difficulty with the father of the child I think.

0. But at the time you thought it had to do with the nature of the arrest?

> Α. Yes.

0. So, I gather you knew from that moment on that the Coroner may very well be involved in a rather detailed investigation of the Pacsai death?

> Α. Yes, yes.

Q. All right. And in the Pacsai case you wrote on the chart that digoxin toxicity was one of the possibilities that you were concerned with both during life and I gather after the arrest of Baby Pacsai. Certainly during life were you thinking about digoxin toxicity as a therapeutic or response to a therapeutic dose?

Α. Yes. What I was really considering was a relatively mild degree of digoxin toxicity as opposed to a digoxin poisoning or very excessive level of digoxin. I was more thinking of what might happen if renal function was poor or there was some other problem, the dose was a little much for the baby's



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ability to handle. You know, I wasn't thinking of anything more.

Q. Yes. I take it it is in that therapeutic context, as you say a mild situation of digoxin toxicity that was in your mind both at the time that you observed Baby Pacsai on the 4A ward and later in the ICU?

A. Yes.

Q. Yes. It was in following up that suspicion of yours I take it that you sought out a sample of Baby Pacsai's blood to have a dig. level run on it?

A. Yes.

Q. After you learned of the arrest of Baby Pacsai?

A. Yes. Subsequently during that day I reflected I guess upon the events.

Q. Yes.

A. And it was then I decided that I should see what the digoxin level was.

Q. Yes. And you have told us about the results of your efforts to obtain a digoxin level on Baby Pacsai and that you went to see Dr. Fowler in his office on, you think it was the Tuesday evening?

A. Yes, like, Tuesday afternoon,



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- That's the time that I think it A.
- was.
- I see, all right. You say you 0. told him briefly about what you knew at that stage about Baby Pacsai?
- A. Yes, I think I told him completely what I knew, you know, everything that had happened.
- Yes. You say his response was 0. one of concern and that he left his office with you and appeared to go to the ward?
- A. Yes, I interrupted him in his office where he was doing some work or something and he obviously --

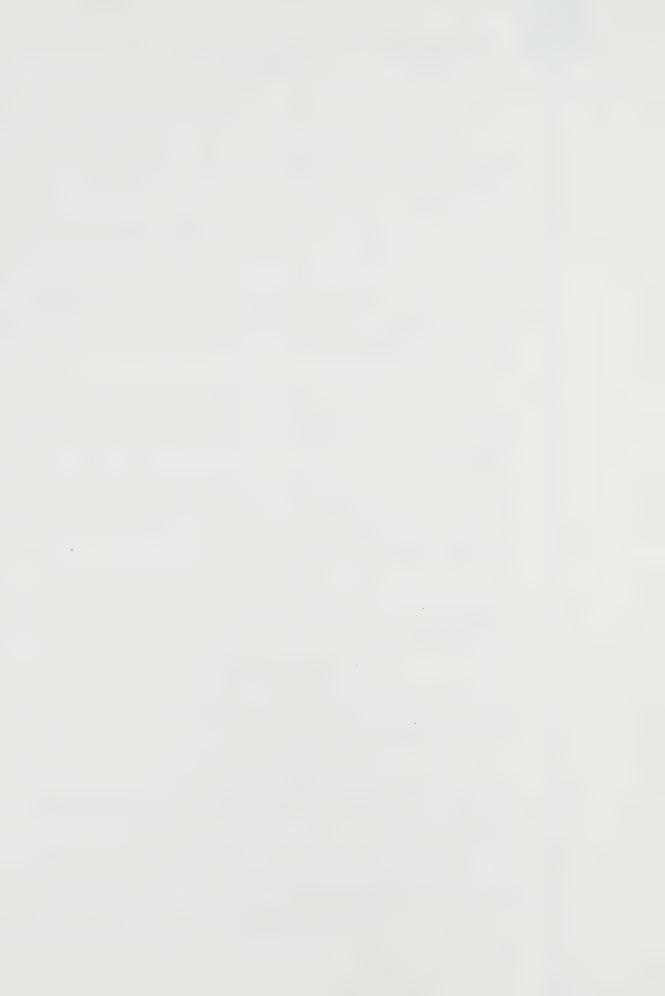
THE COMMISSIONER: I didn't know that he had said he left with Dr. Fowler. Perhaps you did. Did you leave with Dr. Fowler?

THE WITNESS: Yes, we both left together and he went up and I went down or something like that.

MR. ROLAND: Yes, that is what I understood this morning.

THE COMMISSIONER: Well, I thought that

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Dr. Fow	ler,	jι	ist pri	ior to) 1	ea	ving h	nis	visito	r	in	the
office,	but	I	don't	thin	< i	t	really	, ma	atters	th	at	much.

In any event, you MR. ROLAND: Q. say that Dr. Fowler mentioned to you that there had been some sort of a medication earlier, that he was familiar with some medication error?

No, my recollection of this is not very precise but the impression I have was that, it was an impression that he gave me that, you know, there was some problem on the ward or whatever and that he would go and see about it or whatever.

Q. At that stage were you aware that there had been only a few days before a medication error concerning digoxin with Baby Inwood?

> Α. No.

0. No. That's not something you

knew about?

Α. No.

0. No.

Thank you, those are all my questions.

THE COMMISSIONER: Yes, all right. I

am sorry, Mr.

MR. SADVARI: Sadvari.

THE COMMISSIONER: Mr. Sadvari. How

are you?



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MR. SADVARI: Fine, pleased to meet

you.

THE COMMISSIONER: Would you like to take over? He has to introduce himself to me as well as to you, Doctor, but he is acting for you I guess. MR. SADVARI: We have been introduced,

yes.

THE COMMISSIONER: Yes. Very well,

Mr. Sadvari.

MR. SADVARI: In fact, I have no questions at this time.

THE COMMISSIONER: Oh.

MR. SADVARI: But I thought you might like to meet me.

THE COMMISSIONER: Well now, Mr. Brown?

MR. BROWN: I have no questions,

Mr. Commissioner.

THE COMMISSIONER: Miss Forster?

CROSS-EXAMINATION BY MS. FORSTER:

Doctor, first of all, I would 0. like to take you to the evening when you went to the ward with Dr. Mounstephen to collect the digoxin. take it you were the one that was responsible for going to wards 4A and 4B?

> Yes, that's my recollection. A.



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			Q.	And	you	investigated	the	crash
arts	on	those	wards?					

- A. Yes.
- Q. How many crash carts were there?
- A. There was two crash carts to my recollection.
- Q. I take it from your chart that you didn't find any digoxin on either of those crash carts?
 - A. Yes.
- Q. Do you recall what you did see on the crash carts by way of medication?
- A. Oh, it would be hard for me to remember what ones were there because I know sort of automatically what is on the crash cart and it would be hard to know what was there that night and what wasn't there.
- Q. All right. Well, what is normally on the crash carts on wards 4A and 4B at that time?
- A. Well, the crash carts are usually supplied in a relatively uniform fashion and the medications that they usually contain are things like bicarbonate, things like intravenous solutions, there is a drawer with all the equipment necessary for

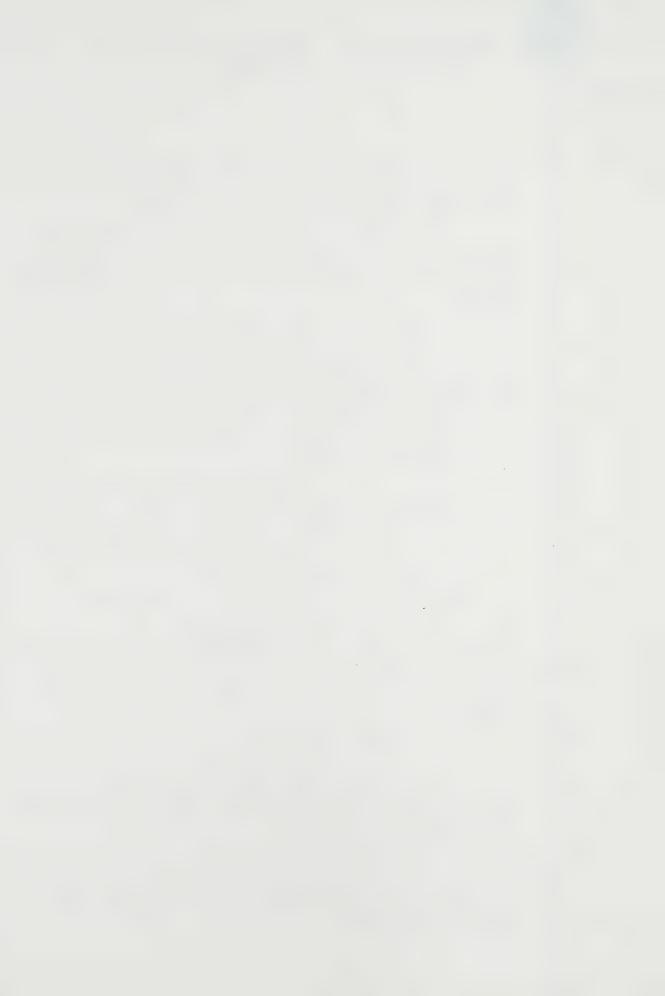


intubation, there is ampules of adrenaline and ampules of xylocaine or lidocaine as it is known.

- Q. Are there any other standard medications you find on the crash carts in the fourth floor?
- A. I am going back two years now.

 I mean, I don't think the fourth floor was really any
 different from any other crash cart anywhere else.

 Occasionally I think there would be some propanolol on
 the crash carts as well.
- Q. Did you ever have occasion to see digoxin on the crash carts on wards 4A, 4B?
 - A. In my experience before?
 - Q. Yes.
 - A. No.
- Q. You indicated the medication on the crash carts was fairly standard throughout the hospital?
 - A. Yes.
- Q. Can you explain why you or
 Dr. Mounstephen would have found digoxin on some crash
 carts and not on others?
- A. No. I'm not aware at that point in time who was responsible for stocking the crash carts with digoxin.



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	Q.	Nov	w, you menti	oned	that o	on the
crash car	ts you found	d IV	solutions.	Are	those	the
plastic ba	ags full of					

Yes, they usually contain, like, normal saline or dextrose or that sort of thing.

Q. And the ampules you found, are those the ampules that would often be injected to the IV bag or the IV bolus?

A. Well, ampules come in different at that point in time I think the majority of the medications were in what is called technically ampules which are the small glass vials with the break-off or file-off top. That would be drawn up and then used either directly, intravenously or whatever route.

Would those be the same type of 0. small glass vials that you would expect to find digoxin in?

Α. Yes, they are the same, approximately probably the same size as far as I know.

And how were the medications stored? Were there single ampules lying around in the carts or was there any system for organizing the medication?

Α. Just to complete what I said earlier, there was also a couple of pre-filled syringes



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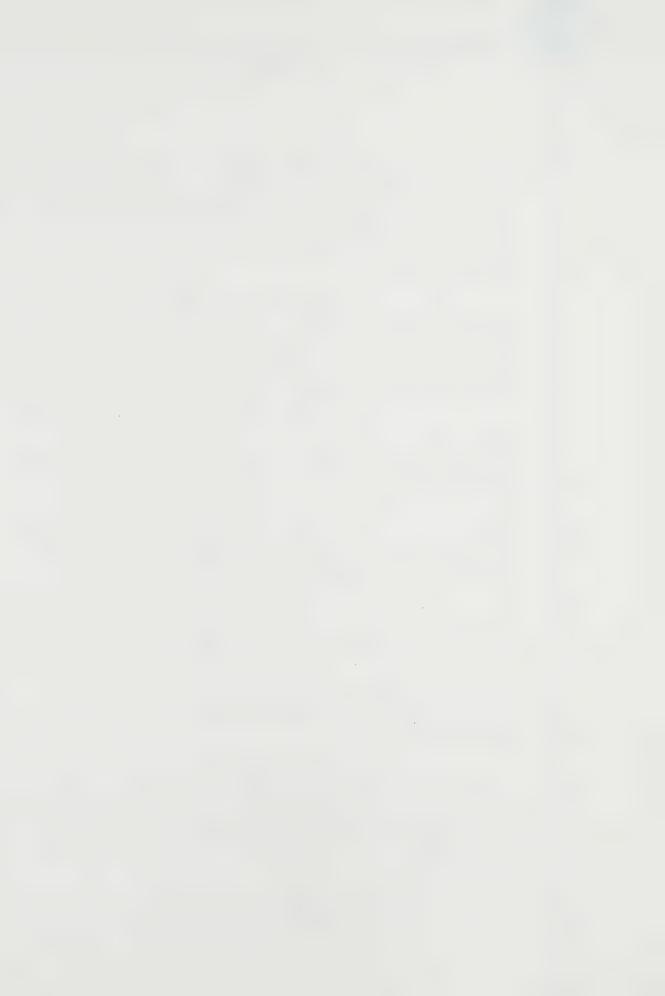
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for medications like bicarbonate or xylocaine. These are syringes that are made up sterile and you just actually break the seal and you use them directly for the administration.

Then your question about the order of events or the order of the ampules on the crash cart. I can't remember what system they had for storing them or keeping them one separate from the other or whatever.

- Well, would you find loose Q. ampules floating around in the cart? Do you find them in boxes, do you have any recollection at all?
- Oh, well, they are usually in one drawer if they are assigned to the medication or on a tray on top that would contain the medication.
- 0. Okay, and would this be a single ampule of each kind of drug in this drawer or the tray?
- My recollection is that there would be a mixture of one or two of each of the different preparations.
- Q. All right. But when you are talking about a mixture of one or two of the preparations are you talking about one or two ampules of each kind of preparation?
 - Yes there was, yes. A.
 - And these ampules, are they all Q.



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A. Yes. Yes, most of them are clear glass. There are a couple of drugs that are photosensitive that are kept in brown glass vials.

Q. What drug are those?

A. Well, I am sure there is quite a list but one that springs to mind is valium or diazepam which is kept in the dark. But I am sure there are others.

Q. Are valium and diasapan normally found on the crash cart?

A. Not normally, no. I'm not sure on that point but I don't think so. It is used for the treatment of convulsions but I don't think it is normally kept on the crash cart.

Q. Okay. And digoxin I take it is in a clear glass ampule?

A. Yes.

Q. What about heparin, did you find that on the crash carts on wards 4A and 4B?

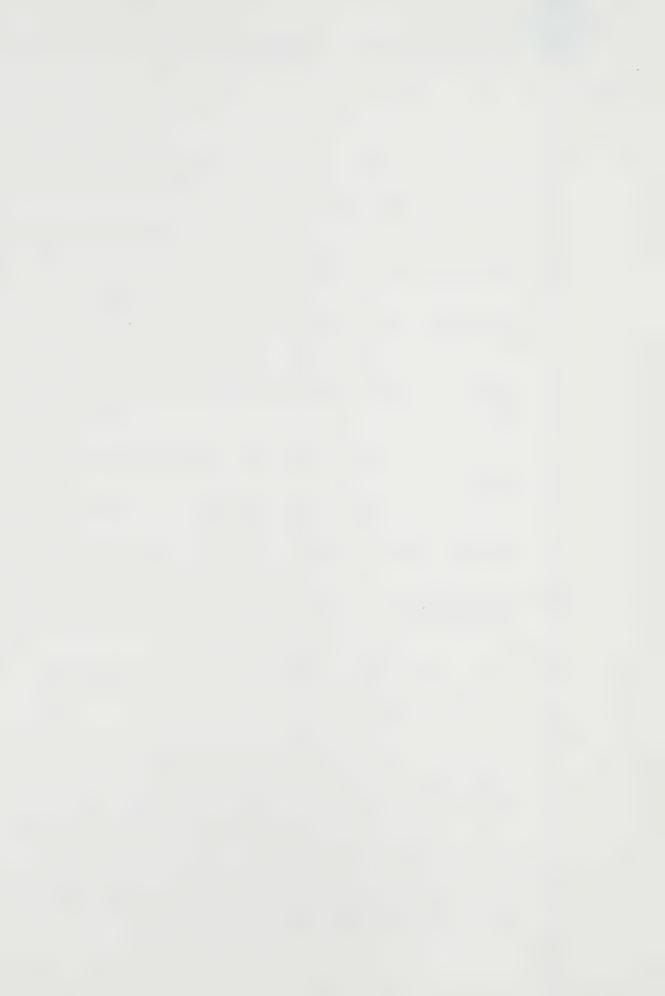
A. We specifically weren't doing an inventory of other medications, we were really doing an inventory of digoxin. So, I can't record or recollect or I didn't record whether we found heparin or not.



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Q. Is that something that is often	
kept on a crash cart?	
A. I can't say, I don't think so.	
I don't think it is normally kept on the crash cart.	
Q. And what about epinephrine, do	
you recall seeing that on the crash carts?	
A. Yes, that is usually on the	
crash cart, yes. Did I say adrenaline earlier; they	
are synonomous.	
Q. And they are also in clear	
glass ampules?	
A. My recollection is yes. It is	
a couple of years since I have seen an ampule of it.	
Q. During your search I take it you	
also went to the medication rooms on the fourth floor?	
A. Yes.	
Q. And there is a medication room	
in both ward 4A and 4B?	
A. Yes.	
Q. Can you explain how the	
medications are stored in those medication rooms?	
A. My understanding of it is not as a	1
expert as regards the situation because my knowledge	
of the situation really was based from my experience	
and it was that there was a limited number of	



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medications kept under lock and key and then there was the rest or the remainder of the medications which were then kept in an ordinary unlocked cupboard.

Q. Now, first of all dealing with the medications that were kept under lock and key. Where physically were they kept in the medication rooms?

A. Well, specifically talking about 4A and 4B where they had a modernization, my recollection is that the locked press was in the little medication room that you described.

THE COMMISSIONER: When you say a little medication room, a room that is just a cupboard?

THE WITNESS: No, it is a bit more than a cupboard. It is a little difficult to describe.

MS. FORSTER: Q. Doctor, maybe I can assist you. As I understand the set-up of the medication room there is a counter and underneath the counter there is a stainless steel drawer.

- A. Yes.
- Q. That is kept locked.
- A. Is that it, yes. I remember the counter all right and my impression though of the lock was a little thing above the counter but I can't be



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sure.

Q. Was there a drawer under the counter where the medication, some medication was kept locked up?

A. I don't remember that drawer, no.

Q. You don't remember. Was it

mostly --

THE COMMISSIONER: Could we just pause briefly for the location of this medication room. If we look at the Statement of Facts there is an Appendix C in the Statement of Facts. I am going to show it to the Doctor. See if you can locate - this is supposed to be the medication.

THE WITNESS: It is like this here.

THE COMMISSIONER: Pointing to the two and they are black squares which are adjacent to the nurses' station which is in the centre corridor between wards 4A and 4B.

THE WITNESS: Right.

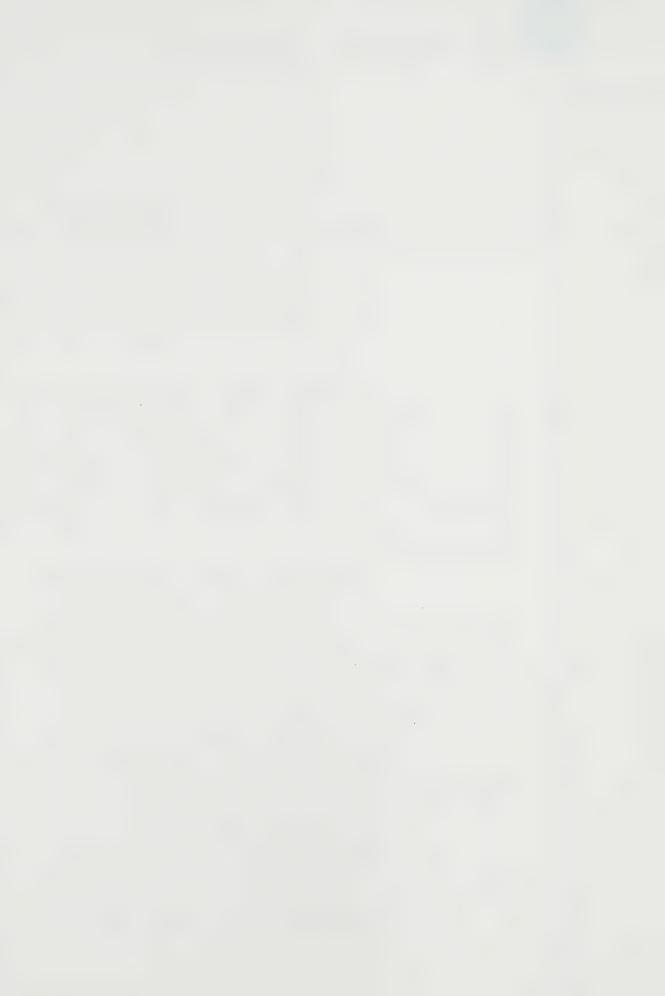
THE COMMISSIONER: And which one of these - well, I suppose you went to both?

THE WITNESS: Both, yes.

THE COMMISSIONER: Yes, all right,

thank you.

MS. FORSTER: Ω . Doctor, as I



understand it, both medication rooms on 4A and 4B are identical in their set-up. Is that your recollection?

- A. Yes.
- Q. And they are very small, aren't they, there is only room for about maybe one or two people in the room at a time. Would you agree?
 - A. Well, maybe three or four.
 - O. Small.
 - A. Okay.
- Q. Now, dealing with the medication that was locked up on 4A/4B, was that basically narcotic type medication?
- A. Yes, that is my understanding that it was medication that was under the Narcotic Act or whatever.
- Q. Do you recall how the other drugs were stored in the medication room?
- A. My recollection was that for, say, oral medication they were in bottles with the name of the child on the bottle.
- Q. Do you recall in the medication room seeing shelves above this counter where the medication was stored?
- A. You are testing my memory too. I can't really remember.



	Q.	You mentioned that the medicatio
was stored wit	h the c	hild's name on it?
	A.	That's my recollection, yes.
	Q.	Well, for example, was digoxin,
it is conceiva	ble tha	t several children on 4A/4B
could be on di	goxin a	t the same time I take it?
	Α.	Yes.
	Q.	And how would the digoxin then
be stored in t	he medi	cation room?
	Α.	Again I am not a hundred percent
sure but my im	pressio	n was that each child had their
own bottle. Y	ou woul	d have to check that with either
pharmacy or nu	rsing.	
	Q.	And when you refer to the bottle
would that be	the eli	xir digoxin?
	Α.	It would be the oral preparation
	Q.	All right. What about ampules
of medication,	how wa	s that stored?
	Α.	My impression was that the
ampules were a	lso sto	red in the medication room.
	Q.	Yes?
	Α.	But I don't remember where they
		dication room. I know they
	prior	to that time in the locked
cupboard.		



you said.

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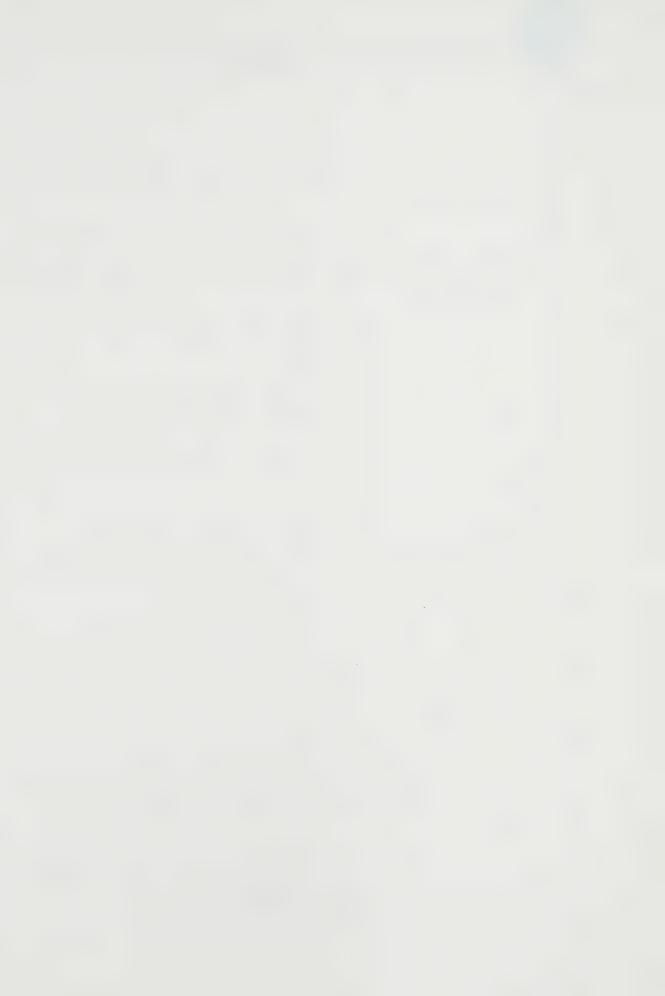
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Q. I am sorry, I didn't hear what

A. Well, what I said was that I was aware that they were not stored in the locked cupboard at that time.

- Q. They were not?
- A. Yes.
- Q. Do you recall whether the ampules were stored with the child's name on them?
- A. I don't think so but I don't know for definite.
- Q. Do you recall whether the ampules were stored in the same place as the bottles of medication, the oral preparations?
 - A. I am sorry, no, I can't.
- Q. Now, on Exhibit 205, which is your inventory, do you have a copy of that in front of you, Doctor?
 - A. Yes.
- Q. Let's take for example ward 4A/B, you have a column Room .25 times 10. What does that mean?
- A. It meant that in the medication room we found 10 ampules containing the more concentrated form of digoxin .25 milligrams, I think



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it was .25 milligrams per ml.

be 15, 20 minutes, sir.

Q. And then I take it .05 times 10 means you found 10 ampules containing .05 milligrams, is that correct?

A. Yes.

MS. FORSTER: Mr. Commissioner, I am about to get into another area and I thought this might be a convenient time.

THE COMMISSIONER: Yes, all right, we will rise now until 2:30. Would it help, Mr. Lamek, if we had some indication, or do you care?

MR. LAMEK: Yes, it would help greatly, Mr. Commissioner.

THE COMMISSIONER: Yes. Can you give us an idea, to start with you, Miss Forster?

MS. FORSTER: I would think I would

THE COMMISSIONER: Yes. Mr. Hunt?

MR. HUNT: I can't be precise but if

it all it won't be very long.

THE COMMISSIONER: Mr. Young?

MR. YOUNG: Mr. Commissioner,

Mr. Percival mentioned to you yesterday that he is at the Law Reform Commission and would welcome an opportunity to cross-examine.



THE COMMISSIONER: Oh, yes, I promised him faithfully. Yes, you are quite right. Well, it is up to everybody else to drag this thing out at least until tomorrow morning.

MS. SYMES: Thirty minutes or so, Mr. Commissioner.

THE COMMISSIONER: All right, thank

you. Well, will the rest of you gentlemen be

prepared then - I guess just gentlemen - be prepared

to do your cross-examination this afternoon, I don't

know, that is if you don't run out because I promised

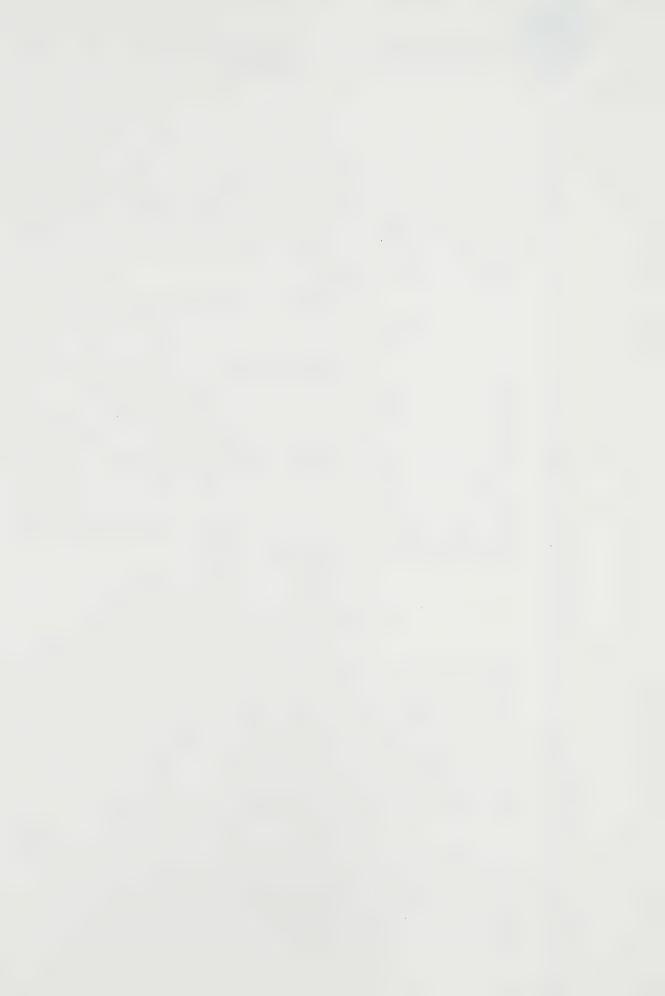
Mr. Percival that he would not be called on to cross
examine him until tomorrow morning.

MR. LAMEK: Thank you, sir.

THE COMMISSIONER: All right.

MR. BROWN: Mr. Commissioner, before we go, Mr. Lamek has kindly provided us with a list of the witnesses to be called in the remainder of Phase 1. If I might ask him through you to identify Dr. Fay, that name is not familiar to me. Perhaps he could give me some idea of who either he or she is.

MR. LAMEK: Yes. Dr. Fay was another cardiologist I believe who was a consultant to the police in their investigation and who, like Dr. Hastreiter, reviewed all these files and formed a



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medical judgment as to the categorization of their deaths as either being natural or suspicious, that sort of a thing.

MR. OLAH: Mr. Commissioner, were there any documents generated by Dr. Fay? We've got Dr. Hastreiter's reports.

MR. LAMEK: Yes, there is a report by

MR. OLAH: Could we have it?

MR. LAMEK: No reason why it shouldn't

go out ahead of time, Mr. Commissioner, no surprises.

MR. OLAH: Thank you.

MR. LAMEK: Okay.

THE COMMISSIONER: Anything else?

Then until 2:30.

Dr. Fay.

--- Luncheon recess



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AA DP/cr ---On resuming at 2:30 p.m.

THE COMMISSIONER: Yes, Miss Forster.
MS. FORSTER: Thank you.

Q. Doctor, I told you before lunch that I had finished with the subject of the crash carts, but a few other questions have come to mind over the lunch hour.

I would like to show you a portion of what has been marked as Exhibit 131 and ask you if you can tell me whether these are the type of ampules that you found on the crash cart?

A. Yes, they looked like that, yes.

Q. I take it that while you were searching for digoxin, you picked up each ampule and read it carefully?

A. Yes.

Q. Because otherwise you would not have been able to tell what drug was in the ampule, would you?

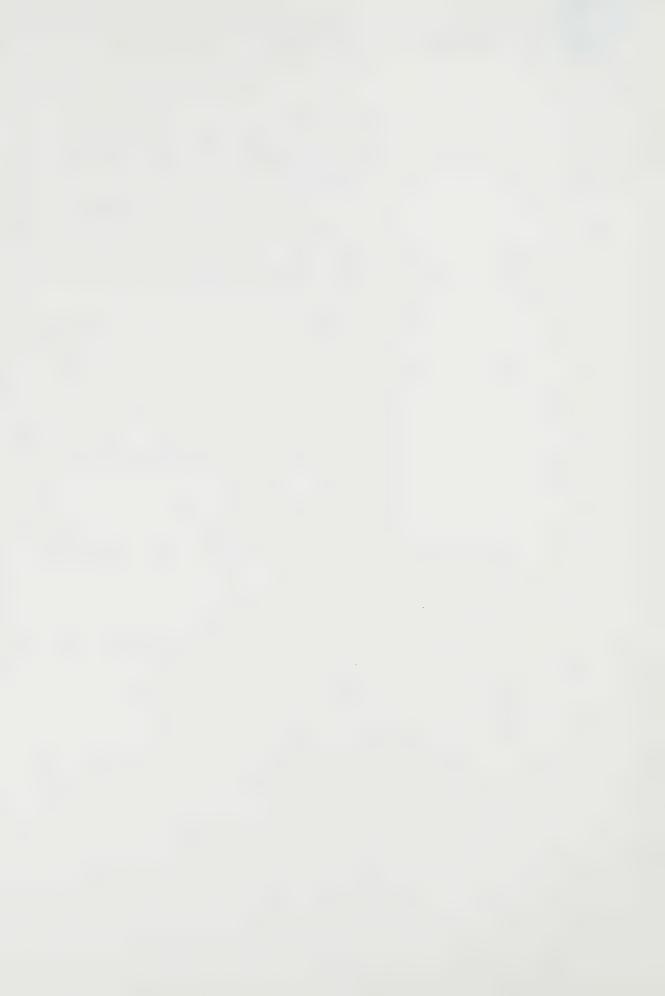
A. Obviously, yes.

Q. The writing on the ampule is quite small, is it not?

A. Yes, but I have good sight.

Q. I am standing now roughly three or four feet from you. Are you able to identify

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for me what are in the ampules I am holding in my hand?

- A. No.
- Q. In all fairness I will show them to you, and you can read them and identify them.
- A. Lanoxin, Injection of Digoxin
 .25 mg per ml.
- Q. And you are referring to the larger ampule in black writing?
- A. Yes. And this one is Paediatric Lanoxin Injection of Digoxin .05 mg..in mF.
- Q. And that is the smaller ampule.

 Doctor, I noticed on your inventory

 that you did find digoxin on the crash carts in

 Ward 4C. Were you the doctor that attended on Ward

 4C or was that Dr. Mounstephen?
- A. My impression is that it was Dr. Mounstephen. I cannot remember authoratatively but my impression was it was Dr. Mounstephen.
- Q. I take it Ward 4C is on the same floor as Wards 4A and B?
 - A. Yes, it is across the corridor.
 - Q. What kind of a ward is it?
 - A. 4C is considered a general





infant ward. Usually	the children being taken care
of there would have a	mixture of conditions, admitted
through the Emergency	Department, or whatever, and
they would usually be	less than 5 years of age.

- Q. Would you expect to find digoxin on the crash carts in Ward 4C?
- A. My impression was that I did not really expect to find digoxin in any of the crash carts.
- Q. Turning to Baby Pacsai, I take it that prior to March 12th you had no involvement in the care or treatment of that child?
 - A. To my recollection, no.
- Q. You indicated that you had cause to examine Pacsai after you were requested by the nurses or one of the residents who was concerned about the child. Is that correct?
 - A. Yes.
- Q. After your initial examination you said that you went to the ICU to discuss the child with Dr. Lynn?
 - A. Yes.
- Q. When you came back to the ward you were told that the child had had an episode of bradycardia and apnea. Is that correct?





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2	A. Yes.
3	Q. Were you told whether
4	resuscitation efforts were undertaken as a result
	of that episode?
5	A. My recollection of it was that
6	there had been - what we call bagging - the child
7	had received some ventilation, not quite mouth to
8	mouth but using an apparatus to administer. That
9	is my recollection of the event.
10	Q. If I can assist your memory,
11	Doctor, do you have the Pacsai record in front of you?
12	A. Yes.
	Q. If I could refer you to page
13	65 -
14	A. Yes.
15	Q. There is a nursing note by
16	Nurse Nelles in the bottom half of the page, on the
17	third line up from the bottom, underlined, it says:
18	"Babe stopped breathing 5/10 seconds.
19	Bagged for short time and seemed to
	come around."
20	Is that consistent with your recollection
21	A. Yes.
22	Q. Can you tell me what is
23	involved in the process of bagging the child?



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A. The fundamentals are that the
child stops breathing or holds his breath for more
than a normal period of time and what the actual
bagging does is it is just a bag with a valve and
either can administer air, or air and oxygen, or
oxygen, and what one does, one squeezes the bag and
through a valve mechanism the air comes out through
a face mask, usually, and you just apply this over
the baby's face in a manner that you usually hold
the jaw forward to open the airway, so you can
breathe for the baby in not a very efficient manner
out depending on the expertise of the person.

- Q. Is this bagging accompanied by any kind of cardiac massage or any other kind of treatment?
- A. It depends on the situation, but bagging of its own, as it is called, is just respiratory.
- Q. Are you aware of any other resuscitation methods given to Pacsai at the time of that episode, other than the bagging?
- A. No, from my recollection it was just bagging.
- Q. And you told us at the time Baby Pacsai was transferred to the ICU you were



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entertaining two possible diagnoses, either Sick Sinus Syndrome or digoxin toxicity. Is that correct?

> Α. Yes.

0. You told us that when the baby was in the ICU you drew samples for a CBC and for an electrolyte study?

> Α. Yes.

And in addition you ordered 0. that a dig. level be taken?

> A. Yes.

And you indicated that you 0. expected that level to be taken some time around 8 or 9 the following morning?

> A. . . Yes.

Doctor, if you had a concern about digoxin toxicity, why did you not order that the dig. level be taken immediately?

Because it would not have hurried things up, really, because the assay was being done routinely and that was usually done every day type of thing, in a routine fashion.

Q. But, Doctor, if the assay revealed that the child was in fact suffering from dig. toxicity, would you not be concerned about taking steps to deal with that condition as quickly



as possible?

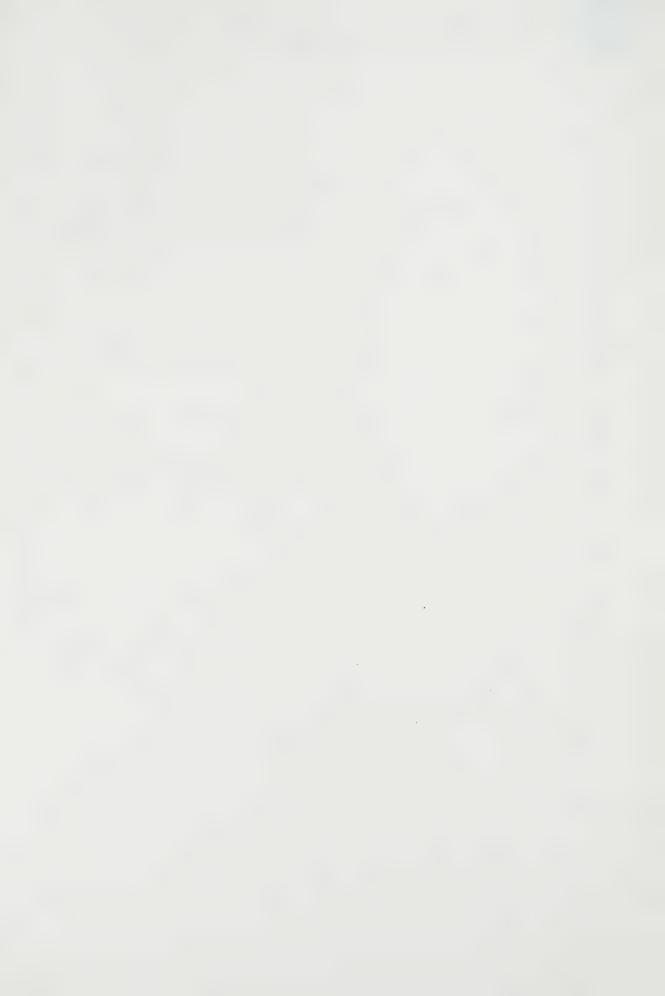
A. Yes, but for that situation in the Hospital as it was at that present time where the results of your digoxin assay were not available for 12 hours or 24 hours, you had to go on clinical judgment.

Q. Is it not possible to get dig. levels done more quickly in situations where you were concerned?

A. At that time, no. It was done in a routine fashion. I do not know what procedure you would have to go about but you probably would have to call in the clinical chemist to try and organize a digoxin level.

Q. So if I took my child to
the Emergency Department because he had just consumed
some of my Grandmother's digitalis, are you telling
me that they could not get a level done immediately
to determine the severity of the overdose?

A. What I am saying is that they could phone - explain the situation to the clinical chemist who provides the service, there is one of them on call, and he would go through the situation with you and if both of you felt it was necessary he would send somebody in. Again it would



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take, I would imagine, a few hours.

Q. Did you do that in the case of Baby Pacsai?

A. No.

Q. Why not?

A. Number one, because at this time it was 5 or 6 in the morning and I was expecting that we would have our samples to the laboratory for the routine work by 8 or 9 o'clock, and that it would take as long, I am sure, to organize a special run as it would for things to take their normal course.

Q. After the child's arrest, you wrote a note in the record which is found at page 61.

A. 61?

Q. Yes - is it 67, I am sorry.

At the bottom after your signature you put: "Question - How did potassium get from 3.7 to 7.7 in less than 12 hours"?

A. Yes.

Q. And you indicated to Mr.

Lamek that at that time the possibility of potassium administration occurred to you. Do you recall that evidence?

A. Yes, I reviewed the possibilities.



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In fact I even mentioned in my note "without any having been given" and the child had no renal failure or any other obvious explanation to me at the time for the high potassium.

- Q. How would potassium be administered to a child?
- A. There are, I guess, a legion of ways it could be done but the commonest way I suppose would be a medication error.
- Q. As I understand it, potassium is produced naturally in the body, is it not?
- A. Well, let us say, it is present and conserved, and its levels are controlled fairly accurately.
- Q. Is it also possible to administer potassium to a person?
 - A. Oh, yes.
- Q. This is a form of medication that would be given to some patients under some circumstances?
- A. Yes, patients with problems of low potassium or a problem with conserving potassium or people on diuretics often receive potassium.
 - Q. What form does that medication



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take? Is it in ampul	e or
Α.	There are many oral preparations
and then there are, I	think, a number of ampules, as
you say, or intraveno	us preparations.
Q.	Would they be ampules of
the type that I showe	d you earlier?
Α.	I am just trying to think.
I cannot recollect.	My impression is not, but I am
not 100 per cent sure	. I don't think potassium comes
in vials like that.	
Q.	What kind of ampules do you
think	
Α.	The one that comes to my mind
is approximately 10 m	l size of what is called
concentrated KCl, Pot	assium Chloride.
Q.	Is it in a clear glass vial?
Α.	Yes, with a coloured label
is the one that we us	e in the Hospital. I can't
remember the colour.	I think it may be yellow or
something but	
Q.	You are referring to a label
as opposed to the wri	ting that we find on the ampules
of digoxin?	
Α.	Yes, it seems to be a more easy
to read label, on a co	oloured background type of thing.





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A piece of paper affixed Q. then? Not the paper - I don't know Α. how the process is. Q. Some kind of material affixed to the ---Α. Yes, it seems to be embedded in the plastic, or whatever. Is potassium something that 0. is used to treat patients with heart conditions? Potassium is commonly used in patients with heart conditions because patients with heart conditions often are on diuretics which one of their unfortunate side effects is that they cause people to lose potassium. That is the commonest way that people need it. Q. Would you expect to find potassium on Wards 4A and 4B? Α. Would you expect to find it 0. locked up in the medication room or easily accessible? Α. Locked up, now we are talking about - I thought that I had clarified that earlier. As far as I was aware the only drugs that were locked

up prior to that time was just the drugs that were



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under the Dangerous Drug Act.

Would you expect to find potassium on the crash carts in 4A and 4B, and I am talking about the period under review?

Α. No, I would not expect to find it on the crash cart.

Q. Do you recall seeing any on the 4A and 4B crash carts the night you went around to collect the digoxin?

Α.

Is there a particular brand 0. name of potassium that was used on 4A and 4B at that time?

I could recognize the bottle probably but I could not remember - I can describe it to you a little better, really. It was a 10 ml vial and had, as I said, a coloured label and it was I think yellow, and I can't really tell you any more than that. If you show me one, I would probably recognize it but ---

0. One other question on potassium, can an overdose of potassium cause death?

> Α. Yes.

0. You indicated that when Baby Pacsai was in the ICU you prescribed a treatment that

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was designed to lower the potassium level, is that correct?

A. Yes.

Q. My notes indicate that you told Mr. Lamek that the medication designed to lower the potassium may have aggravated the digoxin.

THE COMMISSIONER: There was concern at the time - is that what you are saying?

THE WITNESS: Or concern a little

MS. FORSTER: Q. Can you tell me what you meant by that statement?

later maybe, more than at the time.

A. It is a little bit to do with I am not an expert on the pharmocology of this, but it is my understanding at the present time and at that time, which may have been even better than it is now, but the situation was if you had a low potassium you were in a situation of aggravating digoxin toxicity. That is probably the commonest situation, if you had a patient with digoxin toxicity, you check the electroly tes in case they have low potassium whereas the opposite effect of the high potassium may protect against the effects of digoxin. In fact, some of the treatments advocated for digoxin toxicity would be to elevate the serum potassium level.



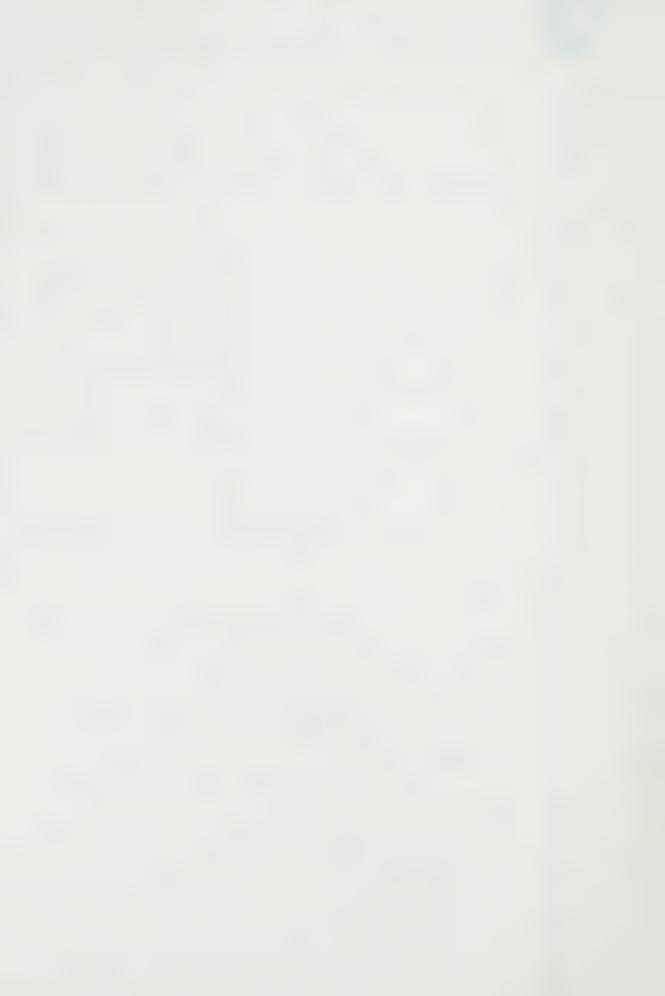
Q. Just to clarify that a bit more

nanograms ---

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2	Q. Just as an example, if we had
3	a child who had a antemortem level of 2.5 nanograms -
4	A. Yes.
_	Q. A child with a normal
5	potassium level would be less likely to show toxic
6	effects as a result of the digoxin than a child with
7	a low potassium level, the same child?
8	A. Yes, I think that is correct.
9	THE COMMISSIONER: I'm not sure that
10	that is so because you start off with the assumption
11	that there is this digoxin level.
	MS. FORSTER: That is right.
12	THE COMMISSIONER: As I understand it,
13	it is the high potassium that reduces the digoxin
14	level, is it not?
15	THE WITNESS: No, it does not appear
16	to have an effect on the level. It appears to be a
17	physiological counter mechanism.
18	THE COMMISSIONER: So it has only
19	a clinical effect?
	THE WITNESS: Clinical effect, yes,
20	that is my understanding.
21	THE COMMISSIONER: I am sorry, you
22	were right.



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if you	lower	the pota	assium level you are not going
to, at	the sa	me time,	increase the digoxin level?
		Α.	No.
		Q.	It is simply the lower the
potassi	um lev	el the n	more prone you are to exhibit

A. That is the dynamics in a situation that we are usually used to, but in sort of

toxic effects as a result of a given dose of digoxin.

Q. You also indicated to Mr. Lamek that you had never had contact with a digoxin level of 26 before?

A. Yes.

relatively mild levels of digoxin.

Q. That I take it was the post-mortem level in Baby Pacsai?

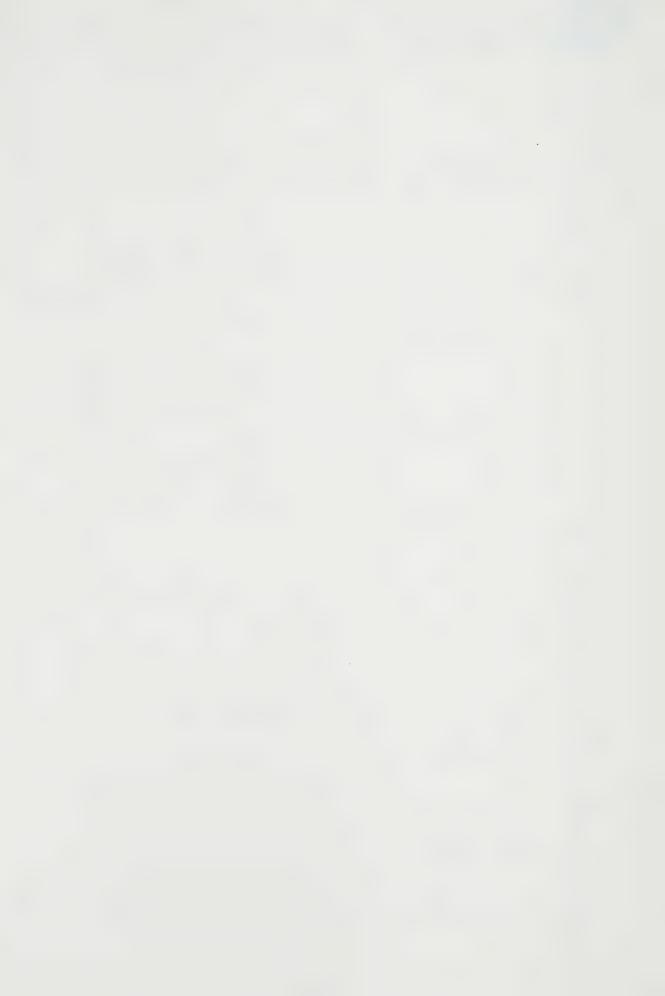
A. Yes.

Q. Had you ever had occasion before this to order a postmortem level to be taken of digoxin?

A. No, I did not order that particular one but I had not occasion to ask for a post mortem.

Q. Had you ever before Baby

Pacsai had any contact with postmortem digoxin levels?



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Α.	No, I guess I assumed because
other things had to be	measured post mortem that it
also could be measured	post mortem, just going from
my knowledge of radioin	mmunoassays and things.

But you never heard of a Q. postmortem digoxin level before Pacsai?

I can't recall hearing of it.

MS. FORSTER: Thank you very much.

THE COMMISSIONER: Miss Symes, I

quess you are next.

MS. SYMES: I think Mr. Hunt is before

me.

THE COMMISSIONER: Sorry about that. CROSS-EXAMINATION BY MR. HUNT:

Doctor, my name is Hunt. 0. represent a number of interests here, including the Attorney General and the Coroner's.

Is it fair to say, sir, that in respect of Baby Pacsai once you became concerned about digoxin toxicity that you were simply not prepared to just dismiss that as having played some role in his death?

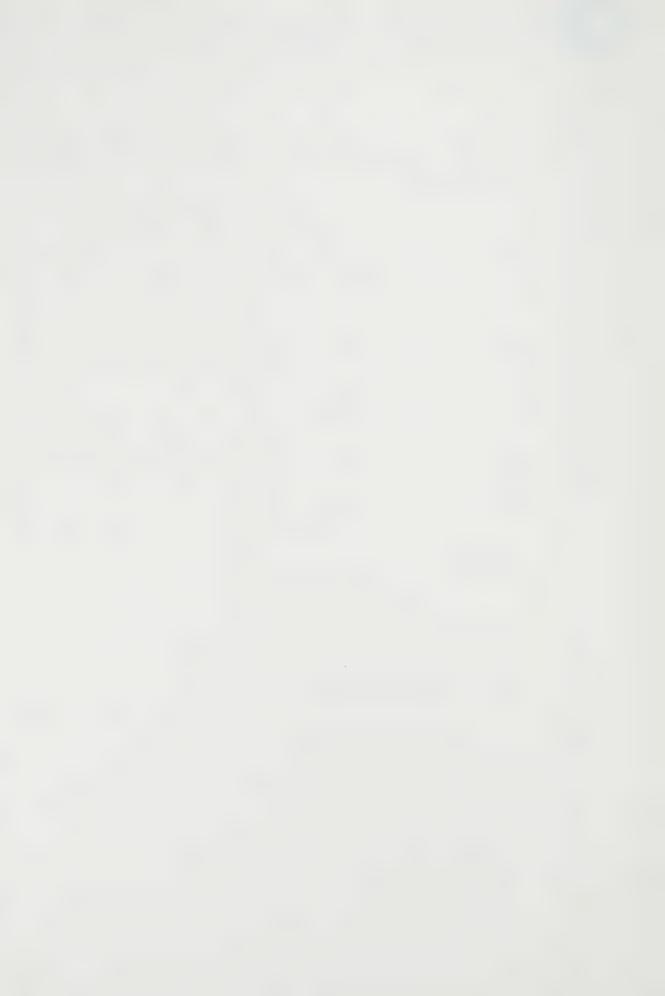
A. I think you are missing out the dynamics of what happened. I think really, myself, looking back at the events that said, you know,



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what	abo	ut	digoxin,	and	that	is	why	I	went	back	lookin
for	the	dig	goxin.								

- Q. And this process started in you at the point in time of death and looking back at the terminal events and your involvement in them?
- A. Yes, our working diagnosis during the arrest or at the time of the arrest was that we were dealing with hyperkalemia arrythmias associated with hyperkalemia.
- Q. So far as the digoxin toxicity question is concerned, you were prepared to track that down until you got a satisfactory answer?
- A. Well, yes, that is maybe not unusual for me.
- Q. My question was, was that as a result of your enquiring nature or is that an indication of the measure of concern that you had about the digoxin toxicity question?
- A. It is very hard for me to judge that question about myself. I don't know.
- Q. But notwithstanding that you knew the Coroner had been called in, you still took a number of steps on your own to enquire into the question of digoxin toxicity?
 - A. Yes, for my own interests.



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			Q.	One	of	them	was	to	go	to	
Dr.	Fowle	er an	d repor	t to h	im y	your	expe	cier	nce	in	terms
of t	the ev	vents	and as	well	the	info	rmati	ion	tha	at 3	you
got	from	the	testing	that	was	done	?				

- A. Yes, that was on the Tuesday.
- Q. That was late on the Tuesday.

 On the Wednesday you indicated you sought out Dr.

 Carver after the grand rounds to speak to him about it?
 - A. Yes.
 - Q. He is the chief of Paediatrics?
 - A. Yes.
- Q. And once you had spoken to Dr. Fowler on the Tuesday, was there some concern that you still had that the matter be enquired into at a higher level? Is that why you sought out Dr. Carver on the Wednesday?
- It is hard for me to know why I sought out Dr. Carver because, to my recollection, nothing happened between the time that I spoke to Dr. Fowler and the next morning, and it may have been just that I felt it was the right thing to do. I am not sure why I sought him out the next morning, first thing.
 - Q. You were looking for some



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answers and nothing had happened between Tuesday afternoon and some time on Wednesday when you spoke to Dr. Carver?

A. Yes, I guess I was curious.

I got the impression from Dr. Fowler that he knew more than me, I guess, and I presume maybe I was also interested to know, with Dr. Carver, know a bit more - it was maybe a combination of inquisitiveness and reporting.

Q. Correct me if I am wrong,
but in effect it seems to me by going to Dr. Carver,
the Chief of Paediatrics, really you were sort of
bypassing the normal route and going above Dr. Fowler
or the other cardiologists to report your concern?





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A. No, it wasn't unusual for me to intervene in situations where there was a bit of a conflict of interest maybe between two services. You know, I mean, it was part of my role in a way if there was a bit of a problem say between - about patient management, or about some problem on the ward. Dr. Carver was always available to talk to about situations like this.

Q. And the conflict of interest it may, you may have perceived, did it have to do with the fact that the case in question, that is Pacsai, was a cardiology patient and the question involved the possible administration of drugs?

"conflict of interest" was more maybe in relation
to other situations where I had gone to Professor
Carver. I still haven't got the exact explanation
as to why I went to Professor Carver that Wednesday
morning. I guess it was just a natural thing to do,
I don't know.

Q. Was it natural because you had heard nothing back from Dr. Fowler?

A. I really don't know what motivated me, I think it was probably many things.

Q. And did I get your evidence





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correctly that once you spoke to Dr. Fowler on the 18th about it you never were contacted by him again concerning it?

A. Yes, that is my recollection.

I certainly didn't have any formal sitdown chat with him about it.

Ω. Nor by any other cardiologist.

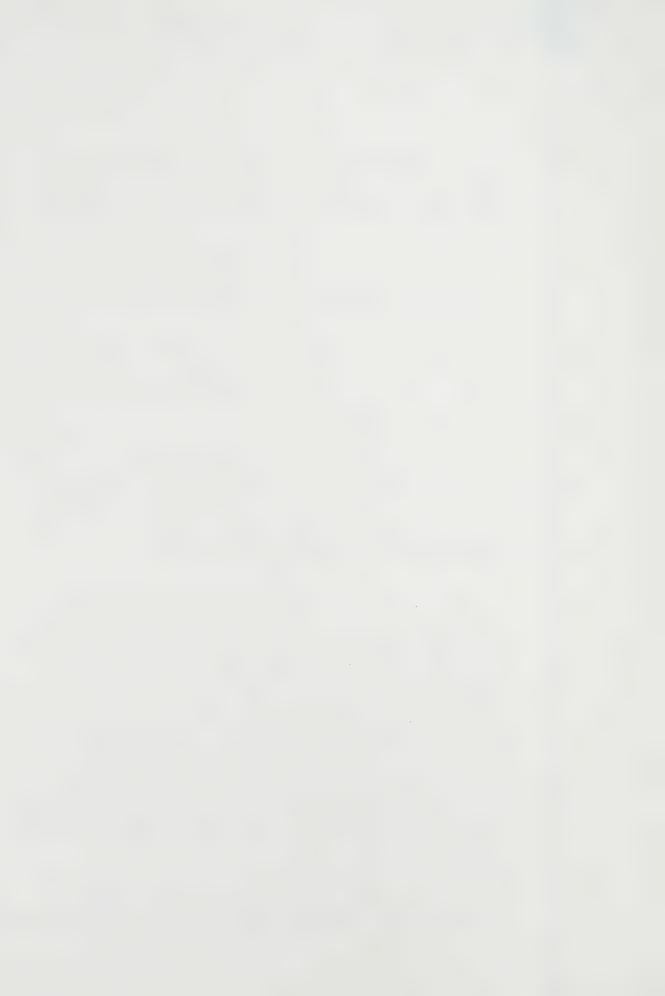
A. Yes, the same applies to the other cardiologists.

Q. Now, you indicated to Mr. Lamek that as of the end of March it was your opinion that Baby Pacsai died of digoxin toxicity and you still hold that opinion today?

A. Yes.

that week you indicated that by the Monday when you came back after that weekend of the 21st-22nd and you heard the results of the analysis of the blood levels of digoxin of Baby Cook, it is at that point in time your concern was more than just heightened, you were beginning to consider, or were considering intentional overdose in the cases of Pacsai, Miller and Cook.

A. I'm sorry, I am losing you a little bit. I am not quite sure what you are saying.



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Ω.	Well,	
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- A. I know you are saying ---
- Q. Well, by the Monday you were, as a result of your involvement in the week before, you were considering intentional overdose?
- A. Yes, it was one of the things I was considering, yes.
- Q. And you had not been in the Hospital, you don't recall, on the Sunday?
- A. No, I think I was probably in telephone communication with the COC chief resident on call that day, but I really don't remember coming in on Sunday.
- O. You had not been contacted by any police up to the Monday?
- A. I don't remember being contacted by the police.
- Q. And you were not involved in any of the meetings with the coroners that may have taken place, the meeting on the Saturday?
- A. No, and the coroner came in on the page Saturday evening that was really just when I left to do the inventory.
- Q. So you were not there for any discussion on the Saturday evening?



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A. Not with the coroner, no

Q. So basically, can I take it that your feelings as of the Monday resulted from your own efforts to enquire into the question of digoxin toxicity during the preceding week, and the opinion that you had gained concerning the levels in Miller and Cook?

A. Yes.

Q. You in effect were involved in a process of getting information for yourself?

A. Well, I mean the information that I got for myself I made available to other people. And, you know, the information that I got was freely available.

Q. I am not suggesting it was restricted to you. You were involved in getting information.

A. Well, the only piece of information that I actively sought out was the piece of information about the digoxin and that was on Pacsai.

Q. And you made suggestions with respect to Baby Miller and the obtaining of a level there?

A. Yes.



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		Q.	An	d ther	n yo	ou ob	tained	infor	rma-
tion,	whether	you	sorted	itout	or	not,	about	Baby	Cook
on the	e Monday	?							

A. Yes.

Ω. In other words, what I am suggesting is, you were starting to put your own experience and the information that you had together by the Monday in forming your own conclusions?

A. I guess so, yes.

Q. The reason I am asking you is we had a suggestion put yesterday by one of the lawyers, Mr. Scott to Dr. Cutz, about an atmosphere that was prevailing in the Hospital as a result of the police appearance on the scene that may have been causing people to form opinions just because they were there. What I am suggesting is that your conclusions and opinions that you held as of the Monday were things that you had arrived at as a result of your own experience and not through the input of anybody else from the police or the coroner's office to you?

A. I think that is fair, yes.

MR. HUNT: Thank you. Those are all the questions I have.

THE : COMMISSIONER: Thank you.



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MR. YOUNG: Mr. Commissioner.

THE COMMISSIONER: Yes, Mr. Young.

MR. YOUNG: I apologize for the confusion this might have caused, but in view of Dr. Costigan's very comprehensive evidence I have had an opportunity to speak with Mr. Percival over the lunch hour. I have a few questions to ask Dr. Costigan, I don't expect to be more than about 10 minutes, and indeed Mr. Percival will not be attending tomorrow to cross-examine:

THE COMMISSIONER: That is fine. You are just coming in at the right time, so you will not be putting anybody out.

MR. YOUNG: That is why I rose when I did.

CROSS-EXAMINATION BY MR. YOUNG:

 Ω . Dr. Costigan, my name is David Young and I am here representing the Metropolitan Toronto Police.

Doctor, you told us earlier this morning that on the Saturday evening you talked to Drs., and correct me if I am wrong, Carver, Fowler and I believe there was a nursing supervisor present as well, and the discussion included a talk about one team of nurses being connected with three



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particular deaths, is that corre	ct?
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A. Well, no. My recollection was that we had only information about two.

- Q. Two deaths?
- A. Pacsai and Miller.
- Q. Had you considered this relationship at an earlier time, the relationship for this one team to more than one death?

had one evening, or one night or something after the cardiac arrest, I am not sure what stage of the whole time it was, I had consulted some nurses who were crying and they happened to belong to that same team, and the reason they were upset was they had been involved in one or two, or three other arrests, I am not sure at that time.

Q. Doctor, do you recall what was the name of the child who had passed away just prior to you observing these nurses?

- A. No.
- Q. You don't?
- A. No.
- Q. I think you told us earlier you were not sure of what date it was. Can you help me with the time period, are we talking in



early 1981, do you know if it was March of that year?

A. My impression is it was later
than earlier, like it was I think closer to the
end but I really couldn't be sure.

 Ω . Doctor, do you have any idea who these nurses were, do you know what team they were from, let's start with that?

A. I don't know how you identify the team, they don't have a name or whatever.

Q. Who was the team leader?

A. I am not even sure of that, but I think it was the team with Susan Nelles and Phyllis Trayner, and I knew other faces but I didn't know other names.

Q. Thank you, Doctor. You also told us this morning that at one point or another you made a list of six children and I believe you were involved in the resuscitation of each of these children? The list included Monteith, Velasquez, Lutes, Belanger, Hines and Pacsai. Is that correct, is that the criteria for a child getting on that list?

A. It was actually a list that arose out of the police questioning of me and I received a typed up version of my answers under the dubious heading of "anticipated evidence". So on



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review of that list last night, I noted that of that list one of them had a note by me at the bottom saying that this death was unexpected. So I reviewed the chart this morning and this is Belanger.

- Q. Yes, I understand.
- A. That note is not reflected in my note at the resuscitation, so it obviously arose from my reviewing of the chart at the time that the police asked the questions. So I didn't really review the chart now to form the same opinion or to comment on that opinion, do you understand?
- Ω . I think I do, yes. I understand enough not to pursue it any more.

Doctor, just one more question.

Mr. Hunt has just reviewed a thought process that
you underwent on the Monday morning and at that time
you considered the fact that you knew, I guess at that
time, of four children who had died as a result of,
well I will not say as a result, you knew of four
children who had died and you knew that each of
these children had rather high digoxin levels
either post mortem or ante mortem, is that correct?

- A. Yes.
- Q. Would it be correct to say that you had never witnessed levels of that magnitude



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Q. When you speak of an intentional overdose, Doctor, we are really talking about murder, aren't we?

A. Well, I don't know your definition of murder.

THE COMMISSIONER: It is not easy,

Doctor, I have struggled with it many times. We are

talking about an intentional killing, is that what

you mean?

MR. YOUNG: That would be my definition, Mr. Commissioner.

THE WITNESS: So your question really was?

MR. YOUNG: Q. Did you, well, will you accept the definition of an intentional killing?

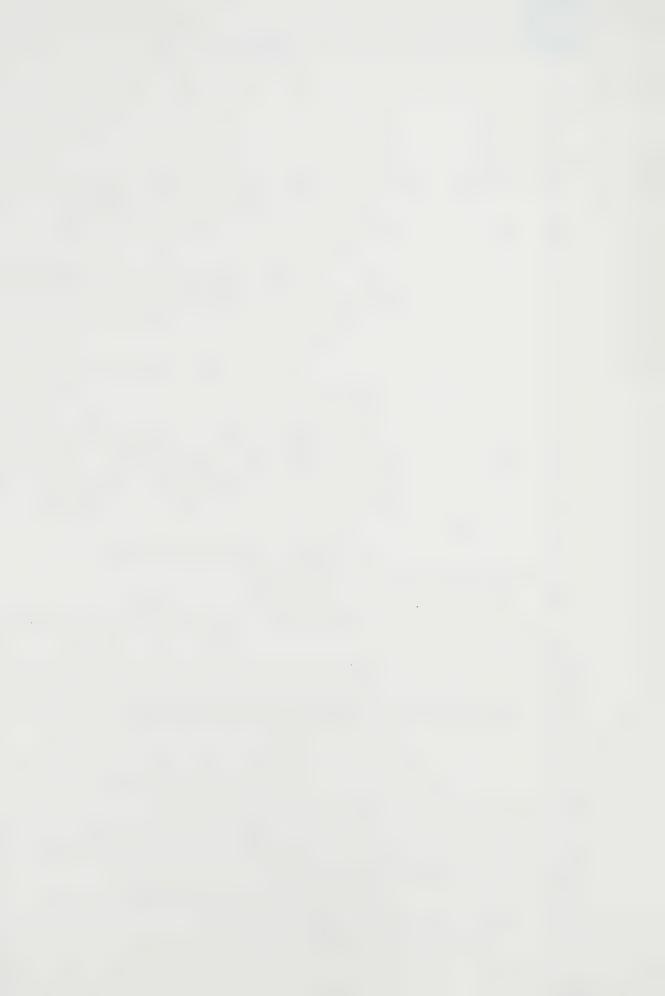
A. Yes.

Q. As being that of murder?

A. Yes.

Q. Is that what you were thinking of on that Monday morning?

A. Among other things, yes, but I was thinking of that, yes.



Q. Doctor, I lied earlier, I said
I had one more question but I actually have one
additional one. During the course of your enquiries
and thinking about this on Monday morning, or indeed
at any earlier time, did you ever have occasion to
look into who the nurse was that was looking after
Baby Pacsai?

A. I know the nurse that accompanied the baby to the Intensive Care Unit with me.

Q. And her name was?

A. Was Nurse Nelles.

Q. Did you ever have an opportunity of looking into who was administering care, what nurse was looking after Baby Miller?

A. I'm sorry, Baby Miller?

Q. Yes.

A. Just a second, no, I did not.

Q. How about Baby Cook, who was

looking after Baby Cook just prior to his death?

A. Well, what I know was that when I had visited the ward earlier that evening Nurse Nelles was holding the Baby and we had spoken about the intravenous so I assumed that she was certainly doing it at that time.

MR. YOUNG: Thank you, Doctor.



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THE	COMMISSIONER:		Now,	Miss	Symes	
CROSS-EXAMINATION	ВУ	MS.	SYMES:			

Q. Dr. Costigan, my name is Beth Symes and I represent the Registered Nurses'
Association of Ontario and a number of nurses who were on 4A/4B during the epidemic period.

A. Yes.

Q. Now, I believe in answer to Mr. Lamek this morning you said that during the epidemic period you did not choose cardiology as one of your elective rotations.

A. During the year that I worked as chief resident I did not choose to work in cardiology, I had previously worked on that very ward the year before for a month as an elective.

Q. That would have been when it was on the 5th floor?

A. Let me think, you will have to clarify - I think it was on the 5th floor at that time, yes.

Q. Now, aside from working on the 5th floor in your rotation as a resident, would you have been regularly seen on 4A/4B during the period from July '80 to March '81?

A. Yes. I have the impression



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that I was there practically every day because this system was that we had what was called chief resident rounds. What that really meant was that we had, myself and the associate chief resident who was on call for the night and any of the other associate residents were available. And a few interested residents if they were available. We would go around and we would discuss any potential problems, any interesting patients, sick patients, in a form of a teaching round and also an acquisition about the possible problems during the night and that was what we did every day.

Q. By March of 1981 then, I gather you would be aware then that in fact there were two separate Wards 4A and 4B?

A. Yes.

Q. And would you be aware that there were two different head nurses?

A. Yes.

 Ω . And were you aware then that on the night, for example March 21st, that there were two separate team leaders?

A. Yes.

Q. And were you also aware that on any given day, or night, that is a 12 hour day



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shift or a 12 hour night shift, that there were two nursing teams, one assigned to each ward?

A. Yes.

Q. And you had told us that on Saturday, March the 21st in fact you were not scheduled for duty that day, but had driven your wife to work and stayed at the Hospital for Sick Children in order to write, is that correct?

A. Well, yes, I forget exactly what I was doing, but I was doing a bit of reading or writing or something, I'm not sure what I was doing.

Q. Can you recall what called you to Ward 4A at about 1800 hours on Saturday night?

A. No, I can't. I tried to

remember but I can't remember.

Q. Who was the associate chief resident who was in fact on duty?

A. Dr. Mounstephen.

Ω. Dr. Mounstephen?

A. Yes.

Q. Was he on both day and night

for the 21st?

A. The situation was that we started at 9:00 to 9:00, 9:00 in the morning until

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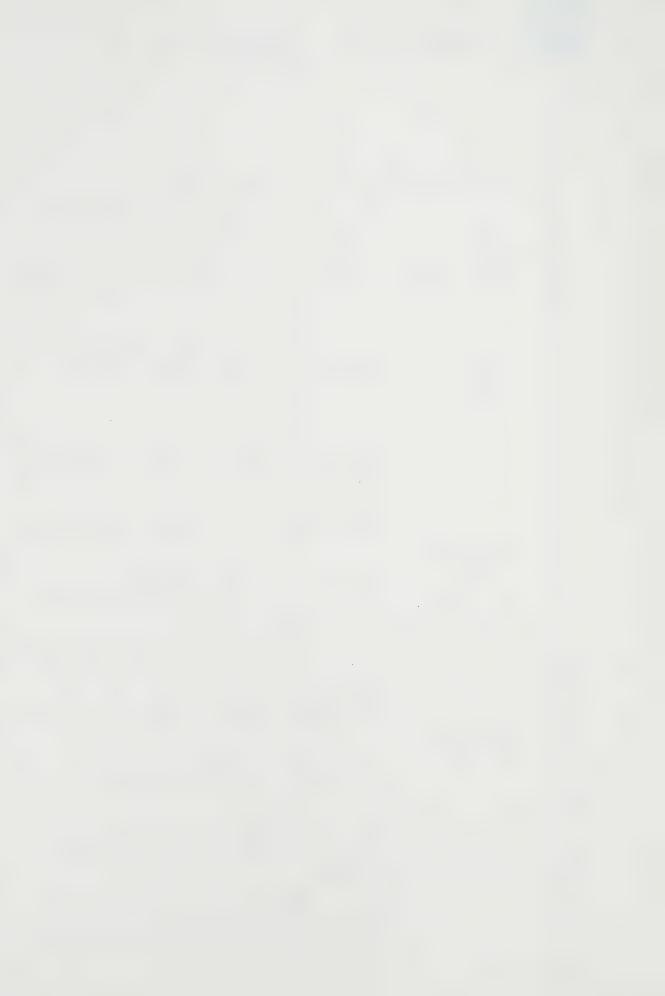


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Costigan, cr.ex. (Symes)

1 2 9:00 the next morning on the weekend. 3 0. So Dr. Mounstephen started at 4 9:00 a.m. on Saturday the 21st and he would have been relieved from duty 9:00 a.m. on Sunday the 22nd? 5 Yes. A. 6 0. Do you remember where you were when you got the call about Justin Cook at around 8 1800 hours? 9 The call? 10 THE COMMISSIONER: I am sorry ---11 THE WITNESS: What call? 12 MS. SYMES: Q. How you got notified, I am sorry. 13 A. Oh, I can't remember, I got a 14 phone call I think from Dr. Carver. 15 Q. It'am sorry, I am trying to take 16 you to Saturday the 21st. 17 THE COMMISSIONER: Saturday was - oh, 18 you mean ---19 MS. SYMES: Q. At 1800 hours. A. Yes. 20 0. You say you are not sure how. 21 you came to the floor? 22 Yes. Α. 23 Do you recall where you were Q.



when you learned that something was wrong with Cook?

A. I'm sorry, I am not following
you for a second. I didn't go to the ward because
there was something wrong with Cook.

 Ω . Okay, why did you go to the ward?

A. That is what I told you earlier, I can't remember why I went to the ward.

Q. You didn't have any particular duties on the ward?

A. No.

Q. Was your associate chief resident present?

A. No, I think not, it was being handled by the cardiac resident and the cardiac Fellow quite well.

Q. Do you know what time you arrived on the floor?

A. My only judgment of that and that is the time that child had a spell, which Doctor - which Mr. Lamek said was about 6 o'clock.

Q. The patient chart for Baby Cook, do you have the chart in front of you?

A. No, no.

Q. I believe, Mr. Registrar, that



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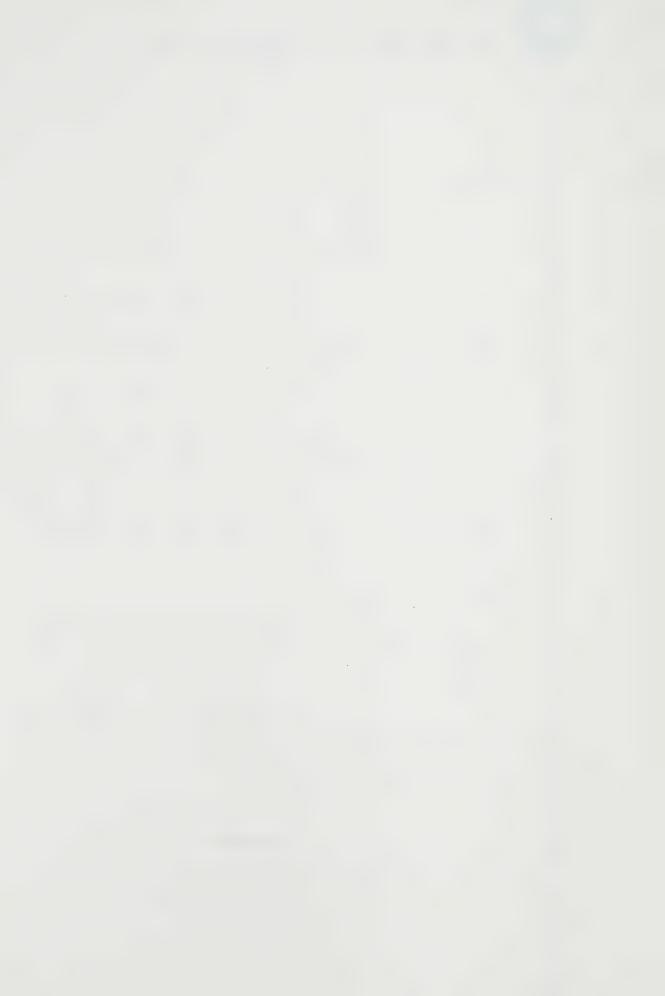
- A. Thank you.
- Q. And it is on page 25.
- A. Yes.
- Q. Is that a note that you were then referring to to help place in time when you would have been on Ward 4A, 4B?

A. I would just like to check whether it is on any other episodes, that sounds very like the actual sequence of events, because the child was blue and the murmur had disappeared. They gave propranolol and the murmur returned and the child picked up, so it is a very similar sort of sequence to that.

Q. Now what stage of the events of the note on page 25 did you actually arrive and see?

A. My recollection was they were just about giving the propranolol or had just given it, just about that time.

- Q. Who was present?
- A. I remember Dr. Jedeikin.
- Q. He was the cardiac Fellow?
- A. That is correct.



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- 0. Who else was there?
- There was a cardiac resident, you know, a resident on the cardiology ward for that month.
 - 0. That was Dr. Kantak?
 - I can't be sure. Α.
- How many nurses were there, do 0. you recollect?
 - No, I can't, I don't recollect. Α.
- 0. Were there a number of nurses, that is, at least three?
- Α. My impression was that there were less than that.
- And when you came in to the room you said that you saw these people and what do you think that you first saw?
- A. I guess I saw a little bit of activity. It is difficult to know what I saw first, so, I just went over to see what was going on. I asked I guess and somebody explained what was happening.
- Did they explain that the baby Q. had had a blue spell?
 - Yes, yes. A.
 - Q. Did they explain that the baby



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had been given propanolol by mouth, that is, orally and that that had not had the desired effect?

No, I don't remember that being told to me, no.

Did you understand that there 0. had been no propanolol on the ward and in fact the nurse had to go to 7G to borrow propanolol?

A. I wasn't aware of that. Was it oral propanolol that she had to go and borrow?

What kind of propanolol did you 0. see being given?

It was the intravenous propanolol I saw being given.

Q. And do you know who gave the intravenous propanolol?

It is very difficult to remember precisely but my impression was that it was Dr. Jedeikin who gave it.

And while you were in the room, 0. do you remember a period of time where there was some confusion as to where was the propanolol to give IV?

A. I wasn't aware of that. Maybe I arrived too late or something but I wasn't aware of that.

> Q. Now, once the child have been



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given the IV propanolol what effect was observed in the child?

- A. I guess the anticipated result was that the child's murmur returned. I think
 Dr. Jedeikin was listening and after giving the injection he listened to the heart and it meant that the shunt had opened up again and the child had become pink again, the child improved.
- Q. Did you see where Dr. Jedeikin got the propanolol from?
- A. No. My impression was, when I arrived, like, when he just about when he had it --
 - Q. In his hand?
 - A. -- in the intravenous tubing.

Maybe he had even given it by the time I arrived.

- Q. Did you see a crash cart that had been brought into the room?
 - A. I don't recall.
- Q. Now, do you remember in the administration of propanolol any discussion about what size syringe to administer the propanolol into the IV?
 - A. I guess I was late for that too.

No.

Q. After the propanolol had been given, do you remember any discussion about the fact



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that this baby was still very ill?

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TORONTO, ONTARIO

- My impression was that they were very pleased, Dr. Jedeikin was very pleased with the response and that the baby had come around very nicely.
- Given that the baby had come 0. around very nicely, was there still a real and ongoing concern that this was not a stable healthy baby and that these blue spells or blue spell might recur?
- Well, it is not unusual for Α. babies with this condition to get spells and they can have very many frequent spells and the treatment is basically similar to what had just been given or, you know, in a similar vein. So, that of itself is not terribly unusual.
- 0. So, for example, although by 1820 on page 25 Baby Cook had responded and the murmur had been heard again?
 - Α. Yes.
 - Indicating good effect from 0.
 - Α. Yes.
- 0. It would not have been totally unexpected or even surprising that another blue spell in fact occurred in the early hours of the morning?
 - Sure, it could have occurred -Α.



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now, I don't know the case very well but knowing the condition that the child had, that the child could have had another spell, yes. The propanolol was not a cure, it was more a symptomatic treatment for an acute episode.

0. While you were in the room, did you hear an order for either constant care or close supervision of the child?

A. It rings a bell but I really can't say, you know, I heard that being issued as an order.

On page 25, it is number 3 of Dr. Jedeikin's notes, strict supervision of child. Do you remember that being said orally?

A. Just as I said a moment ago, I got the impression all right when you mentioned it that this had come out but I really can't remember specifically.

O. Do you remember any discussion that a blue spell might occur again?

> Α. No.

Q. Did you see anyone draw up another drug in a syringe and tape it to the end of a bed?

> Α. No.



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Α]	N	0	•

Q. To the best of your recollection, would you have seen it if it had occurred while you were in the room?

A. It depends. At that time I did not stay very long. In fact, once the baby perked up and was looking pink again I left and I'm not sure when they organized another syringe as you suggest, but I didn't see another syringe being taped to the bed.

Q. Okay. We understand that in fact another syringe was drawn up and taped to the end of the bed. Is that normal medical practice?

on what is normal medical practice from the cardiac's point of view. I don't know who ordered that or whatever. I would imagine it was probably Dr. Jedeikin to have the medication at hand if there was difficulty getting the medication in the first place. That I can see as a logical reason for doing such a thing. It is not a thing that is done commonly. You know, it is usually the medication is out in the corridor or, wherever, in the medication room or wherever, you know.

Q. And if that was done, is that consistent then with a real continuing concern for the health of this child?



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me, yes.

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A. I think it is consistent with
Dr. Jedeikin's impression of the environment at the
time. Maybe he was just doing it to make a point or
something about the availability of medication. I
don't know why he did it. I mean, you should ask him
really. So, what can I say.

Q. At the end though when you left the room, as far as you understood the baby had perked up?

Yes, was pink.

THE COMMISSIONER: Everybody is against

MS. SYMES: Pardon?

THE COMMISSIONER: I say everybody is against me. You are going to force us to call Dr. Jedeikin.

MS. SYMES: Sorry.

THE COMMISSIONER: Maybe we could write him a letter.

MS. SYMES: I think there are a number of people who might like to cross-examine Dr. Jedeikin.

THE COMMISSIONER: Well, that's exactly why I don't want to call him. But I will concede those answers if you want them that it does represent a concern about the continuing nature of the baby,



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otherwise, they wouldn't have done that, if in fact that is what they did.

MS. SYMES: Q. But as far as you can remember you were there just for a short period of time?

> Α. Yes.

0. And you think you entered the room at the time that the propanolol either was about to be given or had been given by Dr. Jedeikin?

I think it was either being Α. given or had just been given.

- And you left shortly thereafter?
- A. Yes.
- Okay. Now, when medications are drawn during an arrest situation we understand and we have had other evidence that the nurse may draw up the medication from the vial into the syringe.
 - Α. Yes.
- And when she hands the syringe to the doctor he checks the vial to make sure that he is in fact administering the correct medication?
- Yes. Often the vial is attached Α. to the syringe or whatever.
- Q. Can you tell me the difference between an inderol or propanolol vial and a digoxin





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vial?

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A. I mean, it has got a different name on them.

Q. Other than the name which I believe Ms. Forster illustrated for you was fairly difficult to read?

> Α. Yes.

Q. Is there any difference between

You are asking me to recollect. Α. I really can't comment. I have seen naloxone vial now, I haven't seen a propanolol vial for a long time, so, I don't really know.

Q. Now, when you went to the meeting on the night of March 21st you knew that there was an ill patient on that ward 4A, that is, patient Cook for whom Dr. Jedeikin had ordered strict supervision of the child. Is that true?

Yes. I wasn't aware of his order Α. of strict supervision.

But you were aware that there were concerns about the child?

Α. As I left the things seemed to be reasonably - I wasn't aware that there was a continuing concern when I left.





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	Q.	So,	you	were	not	aw	are	of	an	У
special	problems then	that	the	nurs	ses (on	4 A	or	4B	
would ha	ave that evenir	ng?								

A. Oh, I didn't realize that there was any special concern about that special baby.

Q. What time did that meeting start on March 21st?

A. You may be able to find out better from other sources. My impression was that it was about 8 o'clock but I could be wrong.

Q. And what time did it end?

A. About 10:30 I think. It may not even have gone on that long.

THE COMMISSIONER: That's when it ended for you?

MS. SYMES: Q. Yes.

A. Yes, that's when Dr. Tepperman

Q. I meant specifically for you.

A. Yes.

Q. That's when you went off to do

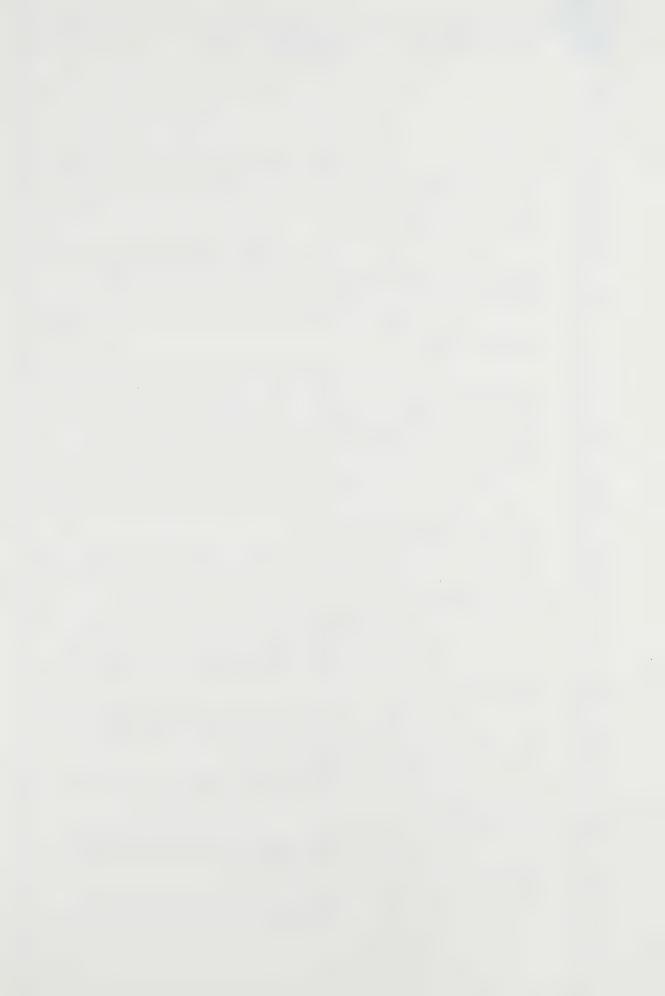
your routine?

came in.

A. That point sticks in my mind,

yes.

Q. Was anything reduced to writing



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with	resp	ect	to	the	meeting	and	the	change	of	the
handl	ing	of	digo	oxin'	?					

Yes. Well, writing. Dr. Carver dictated like a minutes or an order or whatever. He just dictated what had happened, the meeting went ahead, what was discussed at the meeting, the recommendations that were made by the little group or whatever and what we were going to do about implementing what we had discussed at the meeting.

I think we found out from Dr. 0. Carver that that would not have been typed until Monday. So, I am asking you at the end of the meeting did you have anything in writing with respect to what the changes were to be with respect to the administration of digoxin?

- Not in writing, no.
- So, when you were to go and 0. visit each and every ward in the hospital your instructions were purely oral instructions?
- Yes, but I was well known and I used the fact that it was coming from Dr. Carver and, you know, I felt I had no resistance at all to the carrying out of the order.
- But would you agree with me if there was any confusion about what your orders were,





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that	is,	th	e proced	dure	to	be	followed,	that	there	was
nothi	ng	in	writing	to :	refe	er t	:0?			

There was no confusion in my mind as to what was to be requested from the nurses. I explained to them as best I could about what they should do.

0. But do you agree with me still that if a nurse on the floor wanted to check the major change in digoxin orders she would have nothing to look at?

Yes, she would be relying on the team leader having spoken to me verbally, yes.

Q. Now, out of the meeting then you and Dr. Mounstephen who had not been present at the meeting were to go to each of the wards on each of the floors, is that correct?

> A. Yes.

Q. I gather you were to speak to each of the team leaders?

Yes, or the acting team leaders if the team leader was away.

Q. And I gather that you were to communicate to them (a) that digoxin was to be locked · up?

> A. Yes.





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- And (b) that digoxin was to be treated as a narcotic, that is, two signatures before it could be given?
 - Yes, two signatures, yes.
- And the third thing was that you 0. were to do a count or inventory of the digoxin?
 - Α. Yes.
- Was there anything else that was to be communicated or that was communicated?
- I don't remember anything that I was to communicate. We communicated just the minimum really as regards was necessary, that I considered necessary for them to do what I asked. Like, I mentioned that we were having a problem and that Dr. Carver had agreed that we should lock up this and, you know, that was the sort of approach that we took.
- Now, what was to be the role or responsibility of the nursing supervisor in affecting this change? What were her duties to be?
- I can't remember what her duties Α. were to be. I know there was something for her to do, I'm sure, but I can't remember what they were.
- And I gather then that you Q. started at the top floor of the hospital and you worked your way down, is that correct?





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	Α.	That	s my	7]	recoll	ection.	I	am
not a hundred	percent	sure	but	I	think	that's	the	way
we did it.								

- Q. And what time would you have finished the process, that is, reached the last ward?

 A. It took considerably longer than we had anticipated. What I wrote on this little inventory is between 10:30 and 12:30. So, that is as accurate as I have on this point of time, you know.
- Q. Now, when you went towards 4A/4B I gather it has a common nursing station?
 - A. Yes, a central nursing station.
 - Q. You mentioned speaking to, I

believe it was Nurse Trayner, the team leader?

- A. I didn't really know her name at that time but I knew her face and subsequently I learned her name.
- Q. Did you also speak to the other team leader?
- A. Yes. I cannot remember who it was who was on that night because I guess I didn't know her.
- Q. Did you personally see the digoxin locked in the narcotic cupboard on 4A?
 - A. Which is 4A?





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Q. The	side	with	418	on	it
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Α. Oh, yes. What I am saying is that I counted the medications in the presence of the team leader who had the keys and opened the cupboard. I just can't remember the actual lock or clicking of the lock and everything and putting it in but it went as far as that, having all of the medications out of the usual spot on the counter with the door of the cabinet opened. That's my recollection of it.

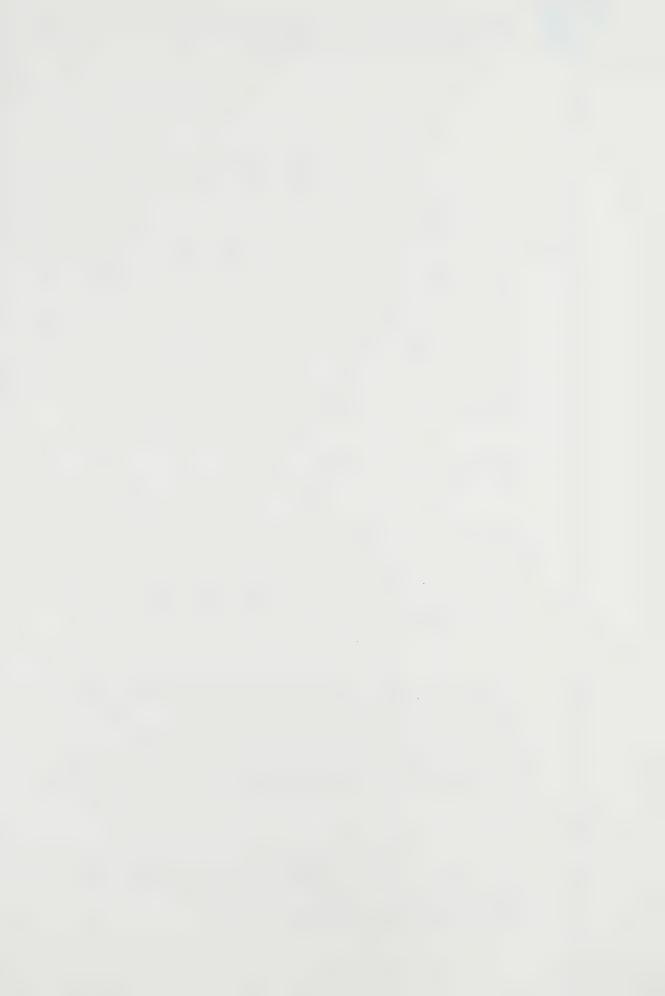
Did you also personally see the Q. locking up of the digoxin on 4B?

Α. Yes. I went over and did the same with the team leader on that side. I think the nursing supervisor might have been even present for 4B. I can't remember but I get that impression that she was there for that.

Q. The reason I ask you that, Dr. Costigan, is that one of my clients who was the night supervisor, it is her evidence, or will be her evidence, that when she went to the floor at about 12:30 that night the digoxin had not yet been locked up.

> Α. Yes.

Q. Now, are you sure that you personally saw it locked?





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MR. LAMEK: He never said he saw it

THE WITNESS: No, I never said I saw it locked. What I said was, as I said, I went over and counted the medications and took them from their usual spot and left them on the desk on the side 4A. What I remember is the DDA cupboard being open or whatever, I don't remember actually seeing them being put in and locked.

MS. SYMES: Q. Did you give anyone instructions that they were to go into each room and see if there were any digoxin vials anywhere in patient rooms and that they should be locked up?

As far as I am aware at the time and now it is not to have it to keep digoxin in the rooms in vials. So, I didn't, to answer your question, I did not.

- Did you personally look for any digoxin other than in the medication cupboard?
 - And the crash cart. Α.
- 0. I am sorry. There wasn't on the crash cart.
 - Yes, but I looked. Α.
- 0. Yes, you looked on the crash cart and there was none.



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Did you at any time look to see if there was digoxin in any of the rooms?

Yes.

A . . No.

All right. And was the oral 0. digoxin, that is, the elixir locked as well?

Α. Yes. My recollection was that all digoxin was - let me think for a second. It is hard to recall. No, I think my impression was that it was just the intravenous preparations were locked up. I can't remember that point.

> Just the ampules portion? 0.

Α. Yes, I think it was only the ampule portions that were locked away.

> 0. Not the oral form?

Not the oral form. A.

0. I gather you have said that it was in fact a mammoth task to visit all wards and speak to all team leaders?

No, the reason it took such a time was really the nurses were busy doing other things and you had to talk to the team leader. You know, it took a little bit of time to explain and sort of ensure that things were done and move on to the next ward.

> Q. But I gather you did it as

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carefully as possible that night?

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A. Yes.

And Dr. Carver has given evidence that in fact you missed some and that on Sunday, March 22nd, Peggy Rappaport from the pharmacy prepared Exhibit 185 which was her inventory and found that you had missed digoxin in a number of places. Does that surprise you?

A. I don't know what places she found digoxin in.

0. It is very difficult to understand Exhibit 185 but I gathered that Dr. Carver's conclusion is that there was some that you and Dr. Mounstephen missed.

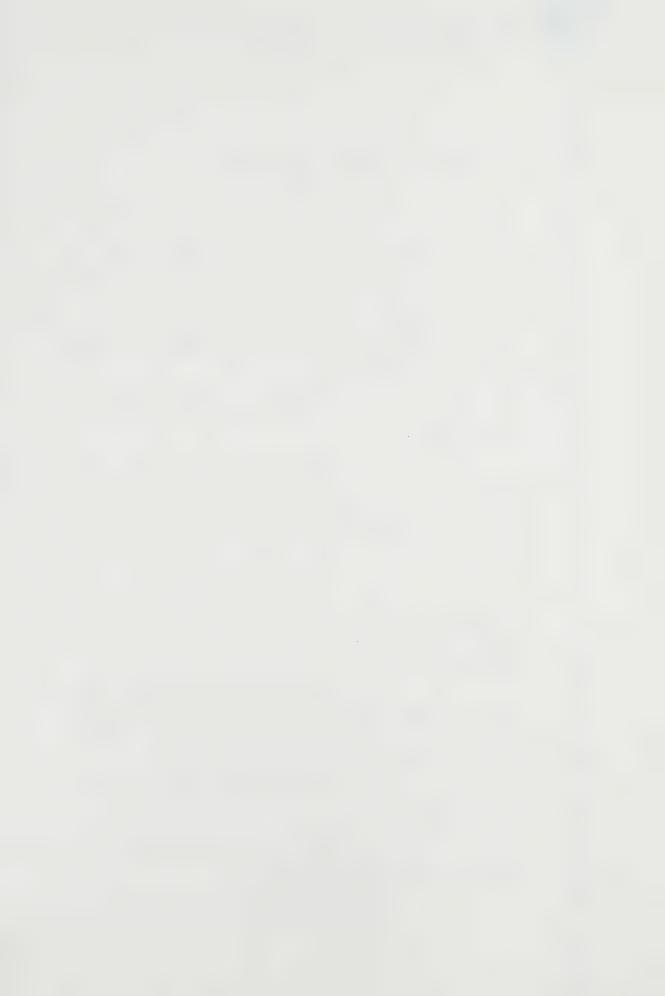
Α. Yes. Well, I mean, the reason I would be surprised if it was in a place that I had already looked.

Q. But it is obvious then that if she found some that there was digoxin in places, perhaps unexpected places?

Perhaps they were in places that we did not look.

MR. LAMEK: Why you don't you show her the exhibit rather than guess.

THE COMMISSIONER: I'm not sure that





1 Dr. Carver put it exactly that way. He did say that C 19 2 she found some additional digoxin but I don't think he 3 4 5 6 that indelicate way? 7 8 9 10 11 Rappaport. 12 13 14 to the evidence? 15 16 be shown Exhibit 185, please? 17

about it after the break.

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said that Dr. Costigan missed it. He may have. MS. SYMES: Yes, he did. THE COMMISSIONER: Did he say it in MS. SYMES: Yes, that it was missed. He said it was a mammoth task and he wasn't surprised. THE COMMISSIONER: Oh. MS. SYMES: Exhibit 185 is the inventory conducted on March 22nd, Sunday, by Peggy THE COMMISSIONER: Yes, all right. MR. HUNT: What is the page reference MS. SYMES: I don't know. Could he THE COMMISSIONER: At some point if we want to take the afternoon break. MS. SYMES: Certainly, perhaps now in case he hasn't - have you ever seen Exhibit 185? THE WITNESS: No. THE COMMISSIONER: All right.

MS. SYMES: Perhaps I could ask you

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THE COMMISSIONER: Well, we will take

15 minutes.

--- Short recess



--- on resuming.

THE COMMISSIONER: Yes, Miss

Symes.

MS. SYMES: Yes, Mr. Commissioner.

At the end, Mr. Hunt

asked at what point Dr. Carver had said in his testimony that some of the digoxin had been missed by Dr. Costigan and Dr. Mountsteven in their sweep of March 21st.

The answers to that are found in Volume 35, on pages 6837 and 6838 in his evidence in chief.

I'm reading at the bottom where he explains that Dr. Costigan and Dr. Mountsteven had taken an inventory of their own and that Dr. Costigan had, prior to all the digoxin being locked up, and they went through the whole Hospital, he then goes on to say that Miss Rappaport did a second inventory on the Sunday, and he says:

> "...of what was locked up and what else she could find. In a few instances, she found that there was some dig. that they didn't find. Also, subsequent to that, some digoxin appeared. She said that a week later some appeared

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from Radiology, which is understandable in trying to find out..."

"Ω. Yes."

"A. She also removed the digoxin that had been locked up from the medication cabinet and replaced it with a set amount in each instance."

In cross-examination by Mr.

Strathy on pages 6889, essentially, that same was repeated and Dr. Carver's evidence was that, no matter how hard they had tried to do it, they had, in fact, missed some digoxin.

THE COMMISSIONER: I just say that he did not quite say that. Those words were not -- MS. SYMES: That he had missed

dixogin?

THE COMMISSIONER: Yes. Did he

say that?

MS. SYMES: Yes.

THE COMMISSIONER: I did not hear

you read it. Perhaps he did.

MR. ROLAND: To be fair to the doctor, it doesn't say he missed it where he looked for digoxin. There may have been some other locations



where digoxin was found that one might not normally expect to find it. It does not say that he looked in the normal locations where one expects to find it, and missed it there.

THE COMMISSIONER: All right. I do not want to make a large issue of this matter anyway. Miss Symes, just carry on.

MS. SYMES: Q. In your Exhibit 205, the copy that we have been given is not legible down the left-hand side. Could you please assist me in reading the first column beneath "7D".

A. The next ward is 7E; the next ward is 7A; the next ward is 7F. The next ward is 7G and that last one is the Transport Team on 7G. That is a specialty team that go out and collect babies from maternity hospitals who are in need of intensive care.

Q. You had said in your evidence to Mr. Lamek that, at the meeting on Saturday, March 21, with Dr. Carver and the nursing supervisor, that there was an observation - you are not sure who it was made by - that the nursing teams were the same on Pacsai and Miller; is that correct?



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A. Yes.

Q. You are not sure whether it was your observation or someone else's?

A. Yes, that is correct.

Q. But was it your understanding or your idea as well that the nursing teams were the same? Did you agree with that?

A. Yes. That is my

recollection.

 Ω . I believe, by review of the patient's chart, Kevin Pacsai was on Ward 4B before he was transferred to the ICU?

A. Yes.

Q. That is your recollection

as well?

A. Yes.

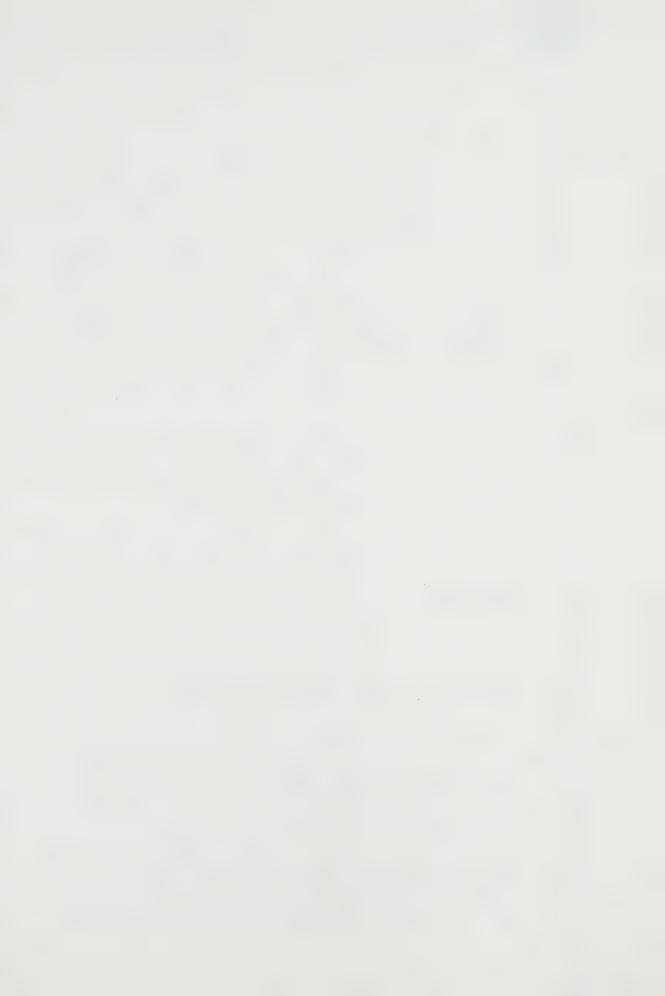
Q. Whereas, Allana Miller

was on Ward 4A at the time she died?

A. Yes.

 Ω_{\bullet} You told me before that there were two wards and two separate nursing teams; one for each 4A and 4B.

A. Yes. But I think it is fair to say it was quite common for them to cross over. I am not quite sure whether they actually



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formally crossed over and covered opposite sides, but they certainly helped one another out in times of busy situations or whatever.

(). Just so I can understand how this conclusion was reached on March 21, did you go through the nursing assignment sheets to see whether or not this thought was correct, or was it just left as an impression?

We did not go through any assignment sheets. I don't think that the nursing supervisor had those present at the meeting. That is my impression.

You would agree with me then that, if the children were in different wards, it was likely that they were cared for by different teams? That is, the team on duty would be a different team?

A. Well, the nurses that were looking after Kevin Pacsai on the Thursday morning --

> That is, early Thursday 0.

Yes. -- were the same nurses who were on the opposite side on Ward 4A on the Saturday; so, I don't know which ward was their





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home, but I know they were in two different places.

Q. You made that observation; that the nurses who had cared for Baby Miller were the opposite team from those who had cared for Kevin Pacsai?

THE COMMISSIONER: That is not what he said. He said exactly the opposite. He said they were the same nurses but in different wards.

MS. SYMES: I'm sorry. I tried to say it exactly the same as Dr. Costigan has; that is, the nurses that were caring for Allana Miller were the nurses that were opposite on Kevin Pacsai.

A. I think if you listen to what I say it might be easier.

Q. All right.

A. The nurses that were looking after Kevin Pacsai were the same nurses who I observed on the Saturday looking after Baby Cook. So, I don't know which ward was their home ward --

THE COMMISSIONER: Was it Cook or was it Miller?

THE WITNESS: It was Cook. It was Baby Cook. I did not really see Baby Miller. So,
I am just saying that this was not an unusual



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occurrence, in my experience; that the nurses would be in different places across the ward.

MS. SYMES: Q. Just to follow up on that, Justin Cook was on 4A; he was in 418?

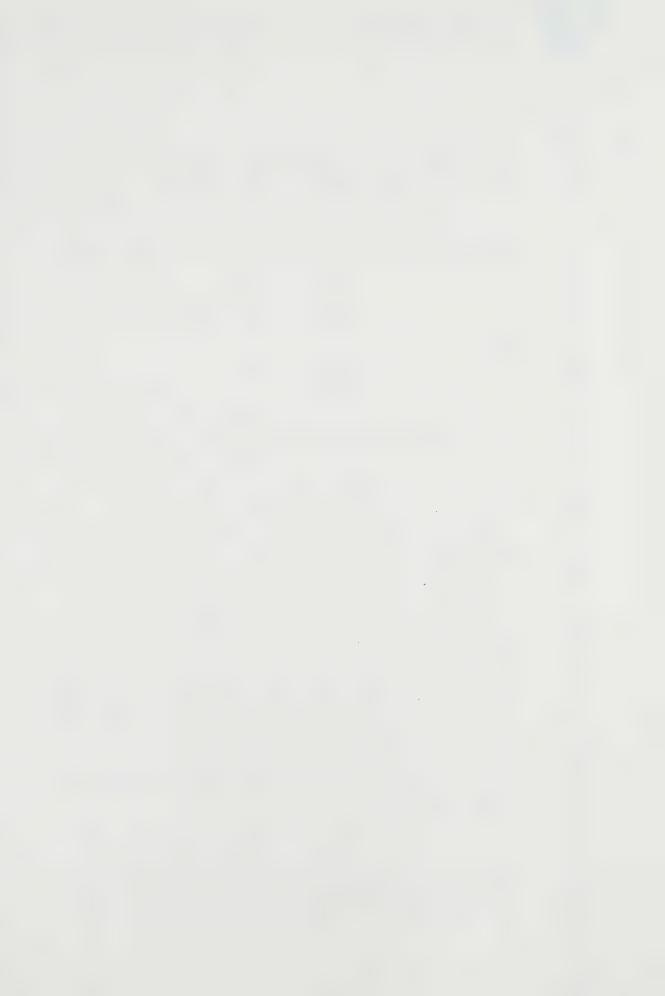
- A. Yes.
- Q. And Kevin Pacsai was on

4B?

- A. Yes.
- Q. That would normally follow that they would be different nursing teams?

think what the theory is; yes, they are two different nursing teams but, I am saying that the experience is that I have seen, in that particular instance I remember exactly but, even before that I was aware of nurses crossing over and working on different sides. I'm using that as an example of those two babies. One was Baby Pacsai, who was on 4B and was being looked after by the same group of nurses who were looking after Baby Cook on Saturday on 4A. I do not know which one was their home base, but --

 Ω . The nurses that were on the team, it is my information that the nurses that were on the team for Baby Pacsai were Miss



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Halpenny, Miss Howard-Jones, Miss Reaper, Mrs.

Lyons, Miss Nelles; whereas, the nurses who were caring for Baby Cook - that is, on the team of nurses to which Baby Cook was assigned - were

Nurse Trayner, Nelles, Christie and Brownless.

A. I guess my interpretation is I knew the team from those two girls --

 Ω_{\bullet} Only one of those nurses

A. Miss Nelles, I guess.

Yes, but I knew certainly Nurse Nelles and Nurse

Trayner that were attached to the one team.

Q. Would you agree with me from what I have just read to you that it was not the same nurses who were looking after both children?

A. Yes. It sounds like it was just Nurse Nelles who was looking after Pacsai.

 Ω . And you said you were not particularly involved with Allana Miller, so you had not made any particular observation as to who was caring for her?

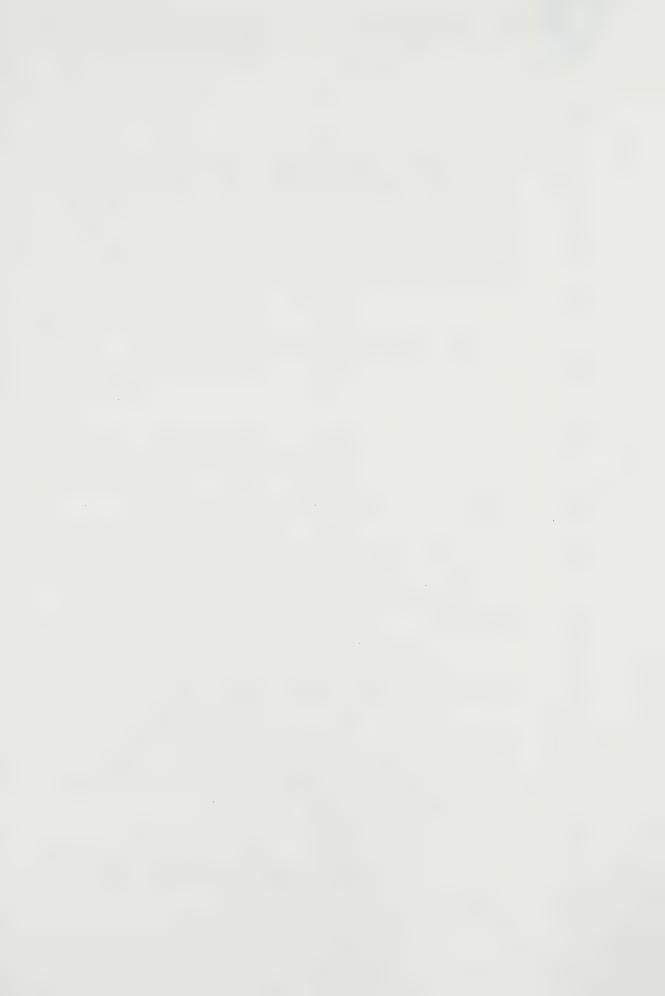
A. No.

MS. SYMES: Those are my

questions.

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THE COMMISSIONER: Mr. Knazan.

CROSS-EXAMINATION BY MR. KNAZAN:

Q. Doctor, I represent Mrs. Christie, who was the nursing assistant on what is called the Trayner team.

I understand you only counted the injectible or intravenous digoxin on the ward?

> Α. Yes.

0. And did you also take it to the nursing station to be locked up where you found it?

> Α. Yes.

You did not count the 0. oral digoxin at all?

No. It was very difficult to do that because there were bottles partly used. It would have been very difficult to quantitate.

> Q. Did you look for that

digoxin?

Α. In what sense, look for

it?

0. I understood this inventory was searching it out so it could be locked up and counted, perhaps incorrectly.

> Α. Yes, parenteral digoxin.





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Q. But you did not search out the oral digoxin?

A. No.

 Ω_{ullet} So, that digoxin would have been left on the floor, if there was any?

A. Yes.

 $\ensuremath{\mathbb{Q}}_{ullet}$ Perhaps, that even could have accounted for the difference between your count and --

A. No. Because I think the difference is purely in the parenteral form. $Q. \hspace{1cm} \text{If you refer to Exhibit}$

185, if you still have that.

A. Yes.

Q. Miss Rappaport's inventory.

On the third page, the first page of the chart perhaps you can assist me in reading it -- this is
not your document but I understand you received
a copy, since your name is on the covering letter.

A. Yes.

Q. Under both columns, "Stock removed" and "Stock dispensed", they seem to refer to pediatric elixir.

A. Yes.

Q. Is that not the oral





digoxin?

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A. Yes. 0.

When she did her inventory, she was concerned with oral digoxin?

> Α. Yes.

Ω. Whereas, you were not

when you did it that night?

Α. Yes.

Would it be correct to Q. say that your inventory that night was purely preventive? It was not an investigative search; it was prophylactic - you were trying to stop something from continuing?

Α. It was difficult to know what function -- I guess it was to try and prevent the use of the injectible form of digoxin by unauthorized persons.

THE COMMISSIONER: I take it, though, that the oral digoxin was left on the -where was it?

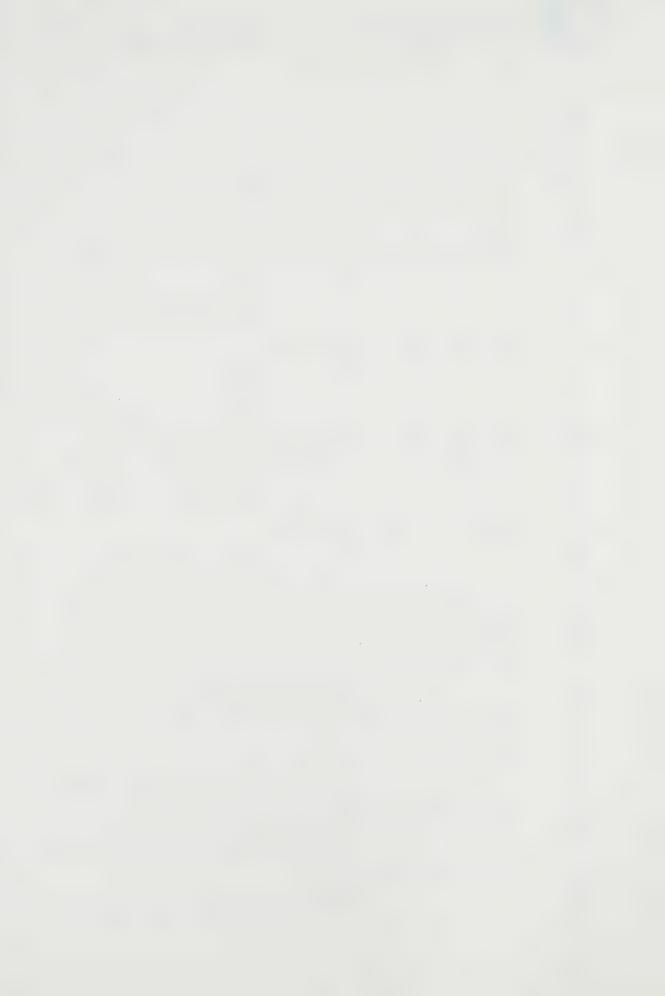
THE WITNESS: In its usual place.

It was kept, usually, in the medicine room.

THE COMMISSIONER: That was locked

up or not locked up?

THE WITNESS: No, that was not



DD12 2

locked up.

THE COMMISSIONER: I'm sorry, what would prevent that from being used by unauthorized persons?

THE WITNESS: The only thing that prevented it, I don't know, really, it had to be double-signed for, but it was not physically possible to lock up all the oral digoxin in the narcotics cupboard.

THE COMMISSIONER: Why not? Was there too much, do you mean? Why was it not physically possible?

THE WITNESS: I guess, at the time when we decided to lock up the digoxin, we decided to concentrate on the parenteral form. I cannot remember exactly why but maybe we thought it was very difficult to keep the stock of the --

question of keeping a stock of; it is a question of keeping it out of unauthorized hands. It doesn't seem to be much good to lock up one type of it and not lock up the other. It may be more difficult for unauthorized persons to administer it orally. I don't understand the process of thought.

What is the number of that



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confidential document, 160 something - the instructions that Dr. Carver --

MS. SYMES: Exhibit 165.

THE COMMISSIONER: Exhibit 165.

Thank you.

If you look -- Could I have Exhibit 165 in front of the witness, please.

This was the document that apparently was dictated by Dr. Carver but would not have been typed probably until the Monday, "All digitalis will become a controlled drug immediately and be treated as a narcotic. All digitalis preparations in the Hospital will be locked in a narcotics cabinet."

All I am really trying to find out is why you made the distinction between the oral and the other digoxin?

THE WITNESS: My understanding of what was decided that night was that we were to do an inventory of the parenteral forms and lock up the parenteral forms and were to initiate the double-signing of the digoxin orders.

THE COMMISSIONER: Thank you.

MR. KNAZAN: Q. Returning to

Baby Pacsai, when you made the decision with Dr.



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Lynn to transfer him to ICU at 5:30 or so, it was for medical and social reasons. Is that what your testimony was?

A. Well, for medical reasons, yes, and social may not be an appropriate word.

Q. No. But in the sense

you used it.

A. To take the sense in general of the situation on the wards.

Q. And that was because of the previous arrest and death earlier?

A. Yes.

Q. So, you were concerned with all of the nurses?

A. I was concerned that there was a high level of anxiety on the ward at the time.

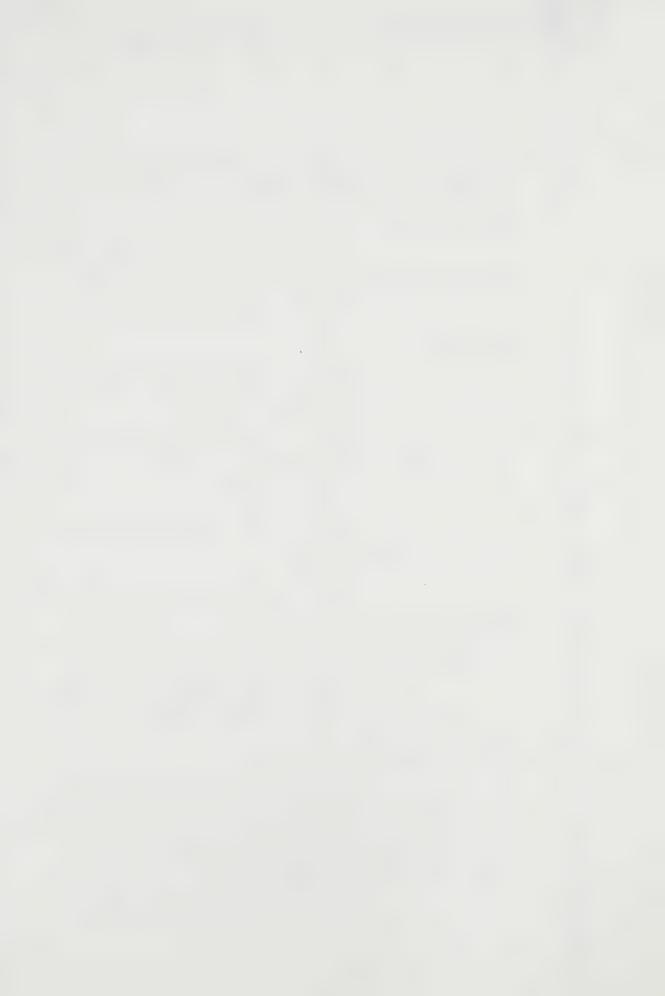
Q. Both sides, 4A and 4B?

A. I was mainly dealing

with the side 4B.

Q. So, although there are indications of instability which justify transferring him to ICU, you thought his condition was stable after that point; is that correct?

A. Once he came down to





Intensive Care, he seemed to be quite stable. Q. And you accompanied him down? Α. Yes. 0. And that was sometime between 5:30 and 6:00? Α. I can't be sure of the time, but it was about that time. Q. And until 8:45, once you were down in ICU, there was nothing to be concerned about, until arrest? Apart from the high Α. potassium level that we got in the results from the laboratory. But as far as the way Q. he presented, those symptoms?

A. In Intensive Care, he was stable, yes.

Q. So, there was about three hours of stability before arrest?

A. Yes.

Q. Once down in the ICU, you changed the IV yourself; is that correct?

A. Was that as soon as you

arrived down at ICU?

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IV?

			Α.	Very	shortly	after,	yes.
Within	fifteen	or	twenty	minutes	5.		

Q. And you don't recall what you did with the IV equipment that you dismantled?

A. In all the processes we have a nurse helping and what you do is you insert the cannula and you take samples and the nurse gives you whatever intravenous you order down there, and it is connected up, and then the other one is taken down.

Q. Why did you change the

A. I can't remember specifically, but the most likely thing was that it was a small butterfly - a smallish -- and the situation when you have a patient in the Intensive Care Unit, you like to have a good intravenous for all patients who are a little unstable, or whatever.

Q. So, it was not through any concern at that time that something was improper about the original IV that was up on the ward?

A. No.

Q. Since that time, you



at the time?

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have acquired somehow the knowledge that decreasing the potassium level can aggravate a situation of digoxin toxicity; is that correct?

A. I think I had that know-ledge at the time.

Q. You had that knowledge

A. Yes.

Q. But you continued to take the steps to decrease the potassium, notwithstanding your query about digoxin toxicity?

A. Yes. Well, in discussion with Dr. Schaffer and because of the magnitude of the high potassium.

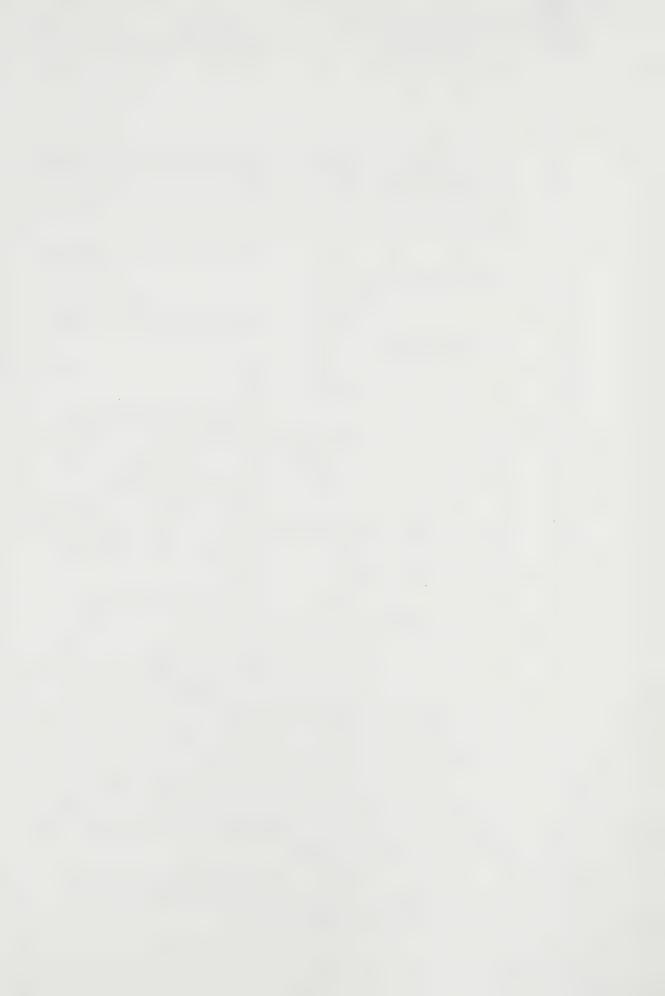
Q. So, that was just a judgment call in that situation?

A. Yes, a judgment, yes.

Q. At some point, did you reject the sick sinus, the other differential diagnosis that you had marked down?

A. I think it is just the way things developed as time went on and we got the subsequent digoxin level.

 $\label{eq:Q.The subsequent digoxin} \mbox{level in Pacsai, in that baby?}$



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Α. Yes.

Q. So, your present view, as you testified today, is that that was the cause of death?

> Α. That is my opinion, yes.

0. Is that in any way related to the results you learned about the digoxin levels in other babies?

Α. That was my impression at the time before I learned any other results of other babies.

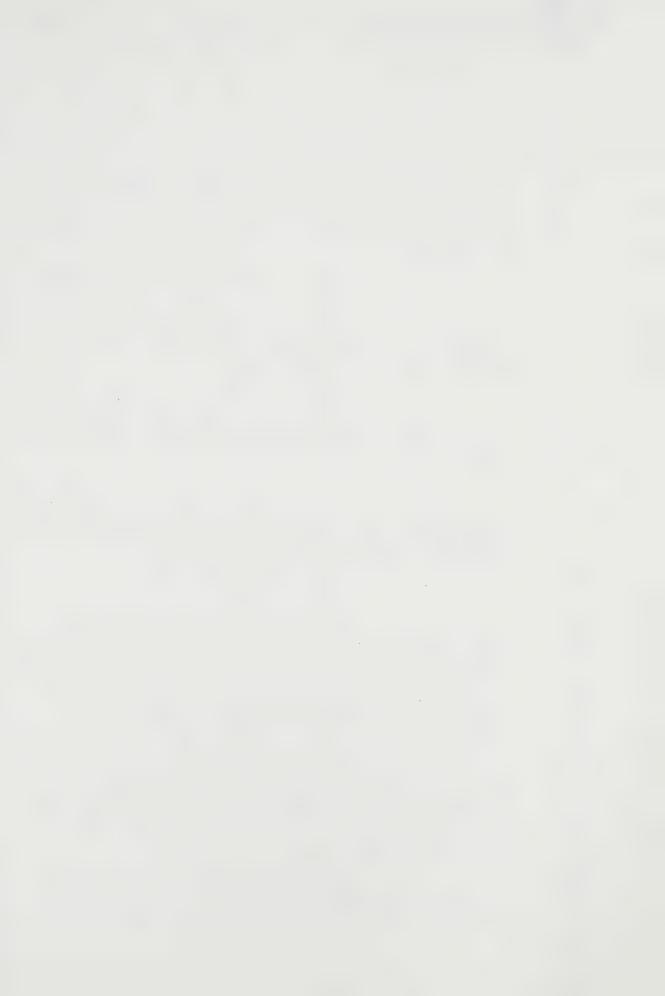
So, just on the basis of Q. the digoxin level, you rejected the other differential diagnosis which you had had that night?

> Α. Yes.

Just with reference to 0. Miss Symes' questions, if I understand the resolution of that it is that you were using the idea of nursing teams to mean one nurse; is that right?

I was under the impression Α. that - I guess it was a mistaken impression - that because Nurse Nelles was on 4B, that that team was on 4B that night.

THE COMMISSIONER: I'm still not quite sure which was which, but I am not going



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to worry too much about it because we are going to have masses of more evidence, I would think, on what nurses were on what team and when, but I am not sure whether we are talking about Miller or we are talking about Cook.

MR. KNAZAN: We're talking about Pacsai.

THE COMMISSIONER: I know we are talking about Pacsai but I'm not sure whether we are talking about Miller or Cook.

MR. KNAZAN: Q. Well, at the Saturday meeting, March 21st, Cook had not died yet and you testified to Mr. Lamek that your own impression at that meeting was that there was the same nursing team for the two deaths that you were concerned about.

A. No. My impression from the meeting was that that came up - I cannot remember who brought up that point.

- Q. You shared that impression?
- A. Yes.
- Q. And you had no knowledge

A. No.

of Estrella at that time?

Q. So, it was just based on



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those two deaths?

Α. That is my recollection of what went on at the meeting, yes.

0. And the nursing supervisor did not have the charts at that time?

> Α. From my memory, she did

Q. Just in reference to Mr. Young's questions, when you said that you had recalled an incident of a certain nursing team being upset about another death --

> Α. Yes.

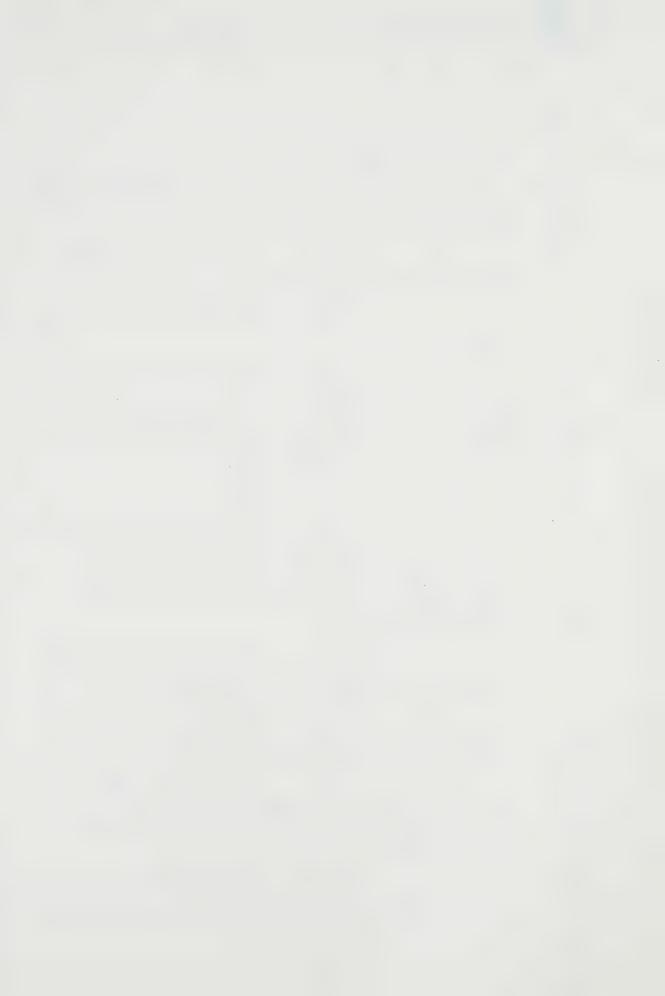
Q. -- whose name you cannot recall, were you using "team" in the sense of four nurses or five nurses or two nurses, when you gave that answer?

My impression was about Α. two or three nurses in the conference room.

Can you recall any of Q. those, other than the ones you named?

The only two that I Α. could remember were, I guess, Nurse Nelles and Nurse Trayner.

Q. With regard to Baby Hines, you had to do some persuasion to obtain the permission

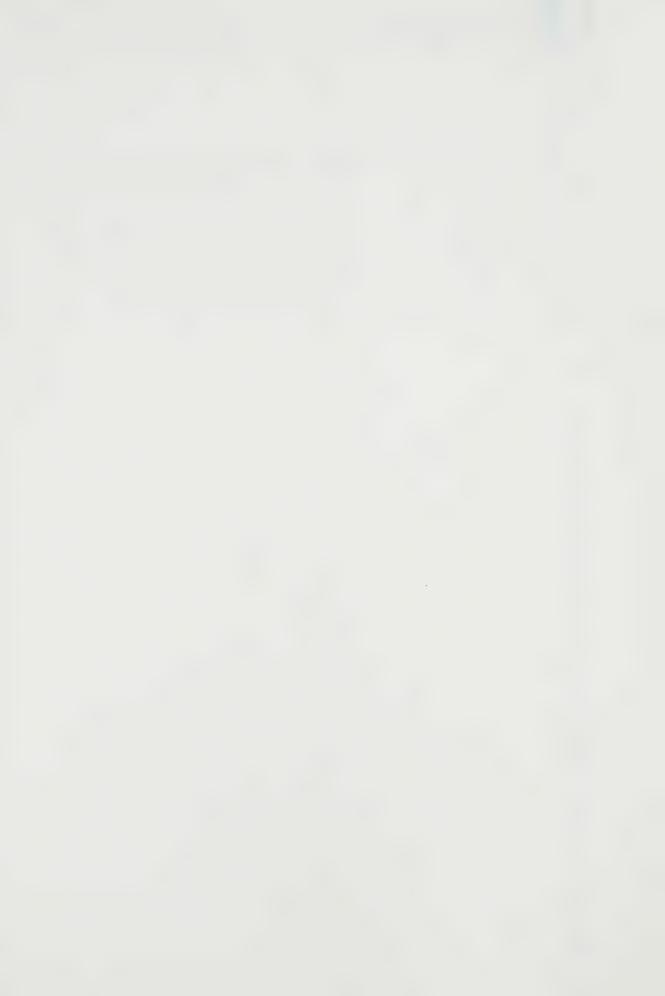


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of the parents for an autopsy; is that right?

A. Explanation or -- Yes.

Q. At some point you were trying to just settle for a partial autopsy and, finally, you prevailed upon them to allow a complete autopsy.



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Q. And if they had not agreed

I presume you knew the options that were open to you that we have heard so much about, you are aware of the Coroner's Act?

A. Yes. Usually you don't ask permission in the coroner's case, that had already been asked for.

Q. So my question which I will tell you is, would you have considered that a coroner's case had the parents denied you the permission?

A. Yes, I think so, yes.

Q. So it was unexpected you would have thought to report it to the coroner?

A. It was unusual, yes.

MR. EKNAZAN: Thank you.

THE COMMISSIONER: Thank you.

Mr. Olah?

MR. OLAH: Thank you, Mr. Commissioner.

May I have your indulgence for a moment,

Mr. Commissioner?



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THE COMMISSIONER: Yes.

CROSS-EXAMINATION BY MR. OLAH:

Q. Doctor, I act on behalf of Janet Brownless, one of the Registered Nursing Assistants on the team, the Trayner team that we have been talking about. A couple of preliminary questions.

From Exhibit 205, it is unclear to me whether you carried out a search for digoxin in the radiology section of the Hospital and the OR. Could you advise me whether you did or did not?

- A. I did not carry out a search in the radiology or the OR.
- Q. So if Miss Rappaport found digoxin in those areas on the following day, I take it that is because no search was conducted in those areas?
 - A. That is correct.
- Q. Now, I was wondering if you could take for a moment the Pacsai chart, Exhibit 106, and there is a number of strips at the beginning of the chart. It is Exhibit 106, Mr. Commissioner.

 You have talked about strip, the ECG strip that you had in your hand that you took with you to ICU.

 Can you identify by any chance which strip it was



that you had with you and whether it is contained in the chart?

- A. No, it is impossible to.
- Q. Well some of them are dated, but some of them are undated. I noticed on page 17 and page 19 of the chart, or medical records, Mr. Commissioner, that there are some unusual indications there. I'm just wondering whether either of those are possibly the strips that you were examining that morning?
 - A. I can't be sure.
- Q. I have had some evidence,

 Doctor, about strips, and about the fact that digoxin
 may affect the length of the interval between the
 P wave and the beginning of the QRS wave. Did you
 observe anything like that on the strip that you
 had in your hand when you went down to ICU that
 morning?
- A. Yes, I wrote in my note I thought it was prolonged.
 - Ω . That is the ST segment, is it?
 - A. PR interval.
 - Ω . Is that the same thing as the

ST segment?

A. No.



Q. That	is	something	different?
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- A. Yes.
- Q. And that was one of the considerations that you had in mind when you reached the conclusion that one of the differential diagnosis may be digoxin toxicity?

A. Yes, it was one of the considerations, yes.

Q. Now, I understand that in fact when you got the baby down to ICU the baby looked quite well?

A. Yes.

 Ω . And you didn't expect a death, or anything unusual to happen after his transfer down to ICU?

A. Well, I felt, you know, happy that he was more stable than he had been on the ward by the history of what he had.

Q. You really had no serious concerns once you had him transferred down to ICU?

A. Well, I had concerns because I stayed with him and I was around from then until the arrest. But what I was saying was clinically on the strips he appeared to be stable from the time I brought him down until the time that he

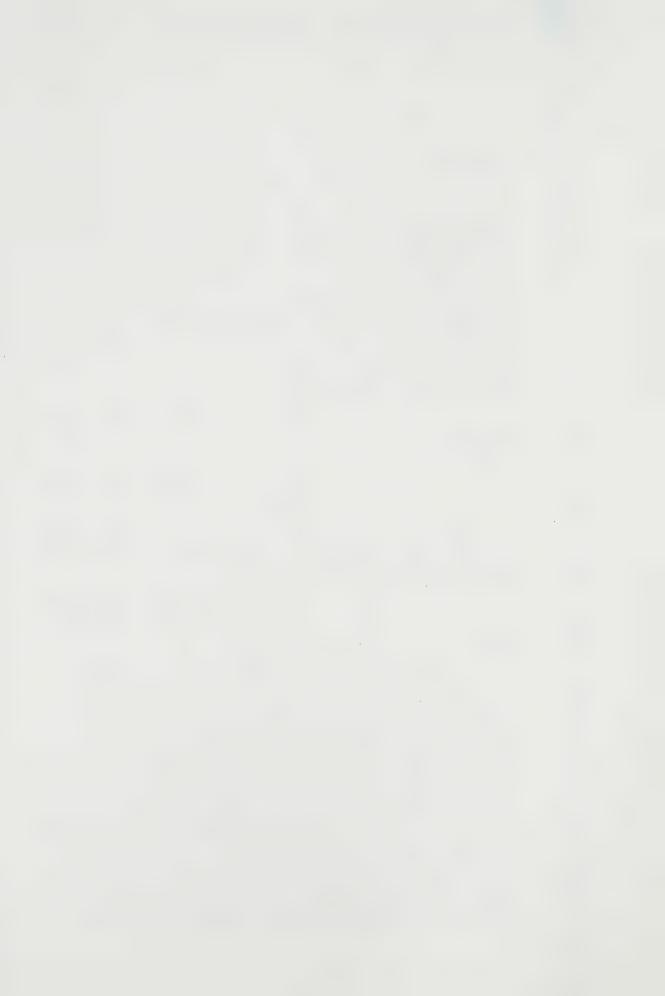


arrested.

Q. I would like to then turn your attention to something a little different. This is the CBC blood sample that you discussed with Mr. Lamek. As I understand it there were at least two samples taken that morning; one was taken after the transfer to ICU, about 6:30 in the morning, this would be the morning of the death?

A. Yes, that would be the sample that I took.

- Q. That is the sample you took?
- A. Well, I'm not sure which one but you know I did take a sample shortly after the baby was transferred to the ICU.
- Q. That is the first sample you took?
 - A. For CBC, yes.
- Q. I guess what I am having trouble distinguishing is were there different samples taken for electrolytes and CBC; were there three samples taken or two samples taken?
- A. There was two venae punctures, you know what I mean, the actual vein was entered twice. The first was to change the intravenous and obtain the first electrolyte sample and the CBC.



		Q.		Let	me	stop	you	there	for	а
moment,	what	time	was	that	t ag	pproxi	imate	ely?		

A. Very shortly, as I said very shortly after I brought the child down to the Intensive Care Unit.

Q. Okay.

A. So it was within 15 or 20 minutes after his arrival.

 $\Omega.$ Now was that sample used for just electrolytes,or electrolytes and CBC?

A. Yes, that is what I was saying, the sample was used for electrolytes and CBC.

Q. Now, you were unhappy with the results, or you were concerned about the potassium results from the first sample and so you took a second sample after it was reported to you around 7:30 in the morning, and that sample was taken what, about 15 or 20 minutes later?

A. It was taken immediately after I received the result I guess of the first sample.

 Ω . And can you tell us approximately what time that second sample was taken?

A. I can't, I would have to judge by what time I received the first sample, you know,



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I can't.

Q. Perhaps I can assist you by taking you to the chart. I am not sure if this will assist you. It is Exhibit 106, Mr. Commissioner. Have you got the chart there, Doctor?

- A. Yes.
- Q. Page 81.
- A. Yes.

Q. That says that the sample, the first sample was collected at 6:30 a.m. Do you have any recollection as to how soon after the collection, that is the first sample, that you received the message from the laboratory as to the high 11.2 potassium result?

A. 9.0.

Q. I am sorry, 9.0, you are right,

A. My impression was that it was within, between half and three-quarters of an hour later.

 Ω . So it would have been about 7:00 or 7:15 that you were advised?

A. Yes.

Q. And you took the second sample at that time?





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- Q. So then we can be sure that the second sample was taken at about 7:00 or 7:15 that morning?
 - A. That seems fair to say, yes.
- Q. Now was there which was the sample that was used for the CBC purposes that we have discussed, was it the first sample or the second sample?
- A. As far as my knowledge there was no blood sent for a repeat CBC, so there was only one CBC taken and that was the first sample.
- Q. So that would have been the sample that was taken at 6:30 a.m.?
 - A. Yes.
- Ω . Thank you. Now you were concerned about the use of that CBC sample for purposes of digoxin testing as I recall?
 - A. Yes.
- Q. And was that because of the container in which the CBC sample was placed?
 - A. Yes.
- Q. What was so unusual about that container that would create alarm or concern in your mind?



A. It was just that it was not
the normal method of collecting blood for digoxin
estimation. What normally happens is that that
blood is kept anticoagulated, and kept liquid,
whereas the samples that are sent for serum digoxin
are samples that are performed on serum after the
cells had been removed.

Q. Now, just going back to that first sample that was taken about 6:30 a.m. Were there two separate extractions used, one for the electrolyte test and the second one for the CBC?

A. What I did was I put in the cannula for the new intravenous attached a syringe and the first syringe probably was a heparinize syringe, which is a syringe which calls for electrolytes or whatever, and then I would get another syringe and take a second container of blood and put it into the CBC tube.

Q. So you had two identical and equal samples?

A. Well not equal in volume, because the CBC is quite small in relation to the size that we take for electrolytes.

MR. OLAH: Mr. Commissioner, I notice it is 4:30 and I am going to be a while yet, would



ElO

you like me to continue?

THE COMMISSIONER: Well finish whatever it is, this subject, if you can, so you can start a new subject, are you finished with this subject?

MR. OLAH: I have just a couple more questions on the subject.

THE COMMISSIONER: Yes, all right.

MR. OLAH:Q. So other than the shape of the vessel in which the blood was placed the CBC sample, that was the only concern that you had with respect to that sample?

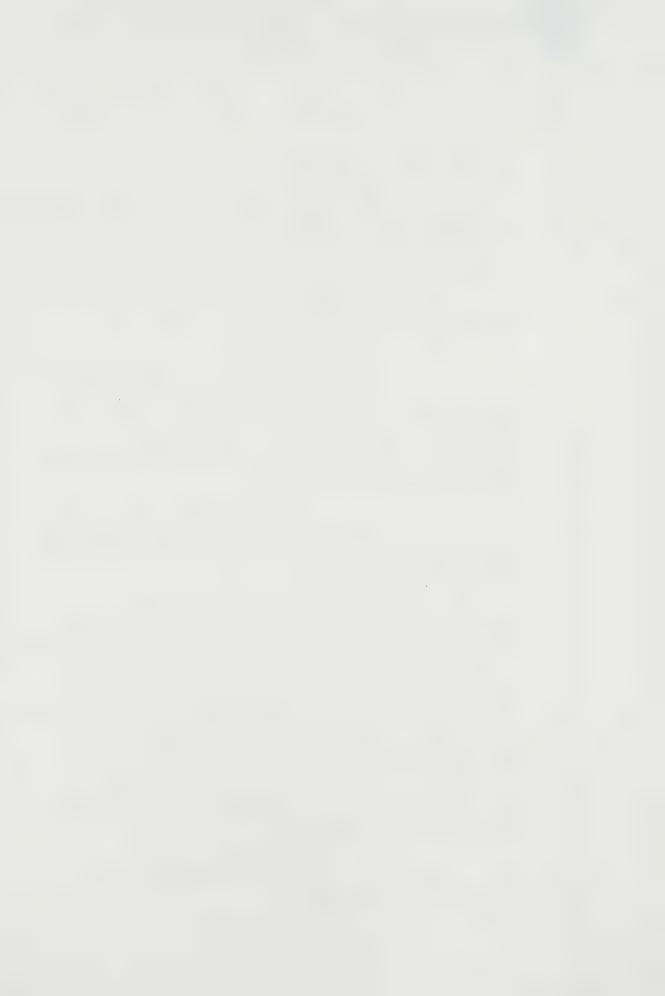
A. It contained an anticoagulant that is not normally used in the transport of blood for digoxin estimations.

Q. And you were concerned that that anticoagulant might affect the ultimate testing?

A. Yes, I had never performed a digoxin estimation on that type of tube. You know what I mean, it was a tube that was specifically designed only for CBC. It went to a different department, it went to hemotology, whereas the other sample went to biochemistry.

Q. Any other basis for your concern other than that?

A. No.



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MR. OLAH: Thank you, those are my questions related to that area.

THE COMMISSIONER: Can you help us by telling us how long you will be in the morning? MR. OLAH: I will be about 15 minutes.

> THE COMMISSIONER: Mr. Labow?

MR. LABOW: I will also be about

15 minutes, Mr. Commissioner.

THE COMMISSIONER: Mr. Tobias?

MR. TOBIAS: About 15 minutes,

Mr. Commissioner.

THE COMMISSIONER: And Mr. Shanahan? MR. SHANAHAN: I should be about 15

minutes, too, Mr. Commissioner.

THE COMMISSIONER: Mr. Shinehoft?

Mr. Shinehoft, I don't see how you can be anything but 15 minutes. That is what everybody else is doing. How long are you going to be?

MR. SHINEHOFT: I have never said anything in 15 minutes, I may be up to an hour but I shouldn't be hopefully any longer than an hour.

THE COMMISSIONER: All right. I think it looks as though we might manage by quarter to 12:00 if you could get Dr. Cutz by that time.

MR. LAMEK: I'm sorry, Mr. Commissioner?



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THE COMMISSIONER: It looks to me as though - no, I don't - I have no idea. Mr. Roland, are you going to be long?

 $$\operatorname{MR.}$$ ROLAND: I have a few questions that have arisen but not that many.

MR. ORTVED: I have two.

THE COMMISSIONER: Well, I don't

know.

MR. LAMEK: It doesn't sound to me
Mr. Commissioner, as though we are going to be
through much before 12:30 if Mr. Shinehoft's estimate
is right.

THE COMMISSIONER: Sometimes we can speed Mr. Shinehoft up. Well now, I think if yourcould ask Dr. Cutz to be available but not here by 12:00.

MR. LAMEK: Maybe we should undertake to let him know by the break whether we need him or not tomorrow.

THE COMMISSIONER: Yes, would you do that.

MR. LAMEK: Yes.

---Whereupon the hearing adjourned until Thursday, October 6th, 1983 at 10:00 a.m.



